

JOURNAL

OF THE

AMERICAN VETERINARY MEDICAL ASSOCIATION

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Volume CXX FEBRUARY, 1952 Number 899

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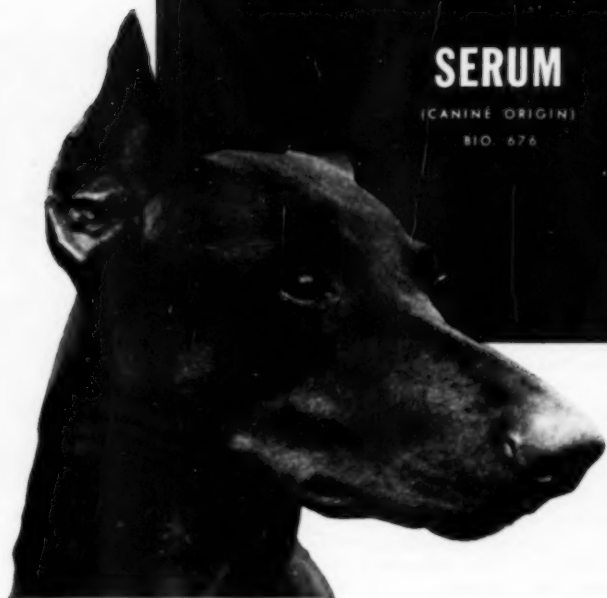
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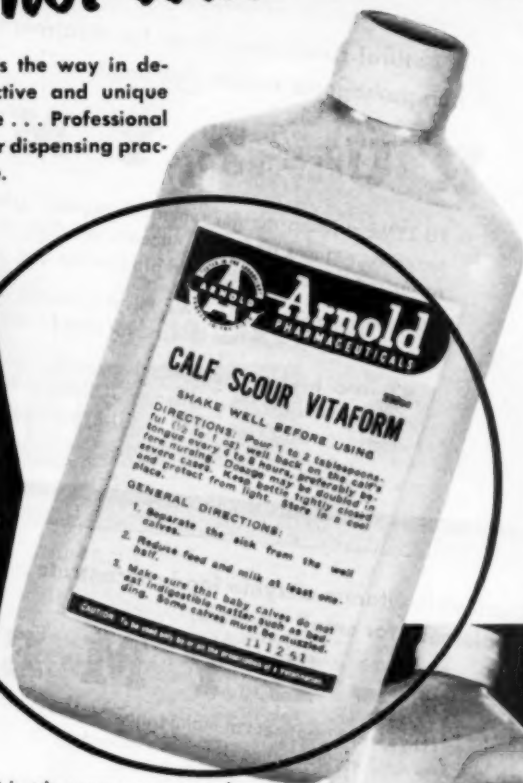
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AVMA ☆ Report

—Veterinary Medical Activities—

◆ President John R. Wells attended the University of Pennsylvania Conference for Veterinarians in Philadelphia, Jan. 7-8, 1952, and the Cornell Conference for Veterinarians at Ithaca, N.Y., January 9-11. He also spoke to the student chapters at these schools.

★ ★ ★

◆ President-Elect W. L. Boyd took part in the programs of several meetings during January: Wisconsin V.M.A., Milwaukee, January 8-10; Minnesota V.M.A., St. Paul, January 14-16; Iowa V.M.A., Des Moines, January 16-18; Intermountain V.M.A., Salt Lake City, January 21-23; and Arizona V.M.A., Tucson, Feb. 5-6. The latter meeting was scheduled so that Dr. Boyd could attend it on his way from the Annual Midwinter Conference of the California V.M.A., Davis, January 28-30. At Davis, he spoke to the student group at the School of Veterinary Medicine.

★ ★ ★

◆ Assistant Executive Secretary C. D. Van Houweling attended the meeting of the Texas V.M.A., Corpus Christi, January 24-26. On this same trip, he spoke to the student chapter at Oklahoma A. & M. College. Dr. Van Houweling will also represent the Association at the Poultry Fact-Finding Conference, held in Kansas City, Mo., Feb. 9-12, 1952.

★ ★ ★

◆ The Committee on Local Arrangements for the 1952 AVMA convention held its organization meeting in Atlantic City, the convention site, on Dec. 7, 1951. All committee officers and chairmen were present to discuss arrangements of the 1952 annual session with Drs. Hardenbergh and Van Houweling of the central office.

★ ★ ★

◆ President Wells calls attention again to the invitation of the Committee on Awards, of which he is chairman, for members to nominate recipients for the awards to be made by the Association in 1952. (See AVMA Report, January JOURNAL.)

★ ★ ★

◆ Information about postconvention tours following the Atlantic City meeting will be found on pages 107-108 of this issue.

★ ★ ★

◆ Executive Secretary J. G. Hardenbergh appeared on the program of the Ohio State Veterinary Medical Association annual meeting held in Columbus, Jan. 2-4, 1952. He also met on January 6, in Philadelphia, with the Committee on Local Arrangements for the Eighty-Ninth Annual Meeting, to be held in Atlantic City, June 23-26, 1952.

★ ★ ★

◆ Executive Secretary J. G. Hardenbergh and Dr. W. R. Krill, chairman of the AVMA Emergency Advisory Committee, met with the Rusk National Advisory Committee to Selective Service and the Office of Defense Mobilization on Jan. 4, 1952. They discussed several matters pertaining to military service for veterinarians.

★ ★ ★

◆ Mrs. C. E. Bild, Miami, Fla., and Mrs. C. M. Rodgers, Blandinsville, Ill., president and secretary, respectively, of the Women's Auxiliary to the AVMA, spent Jan. 14, 1952, in the central office discussing activities and projects of the Auxiliary with the office staff.

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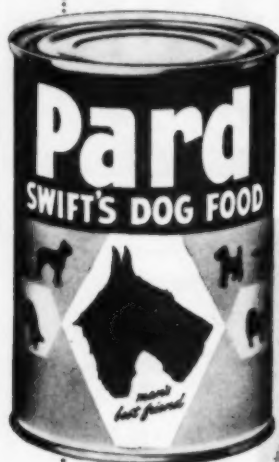
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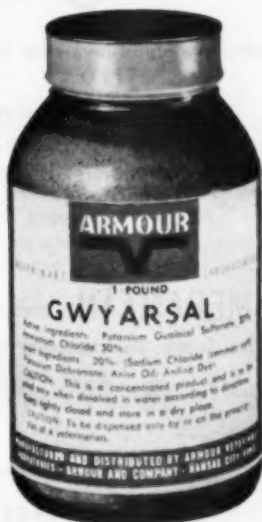
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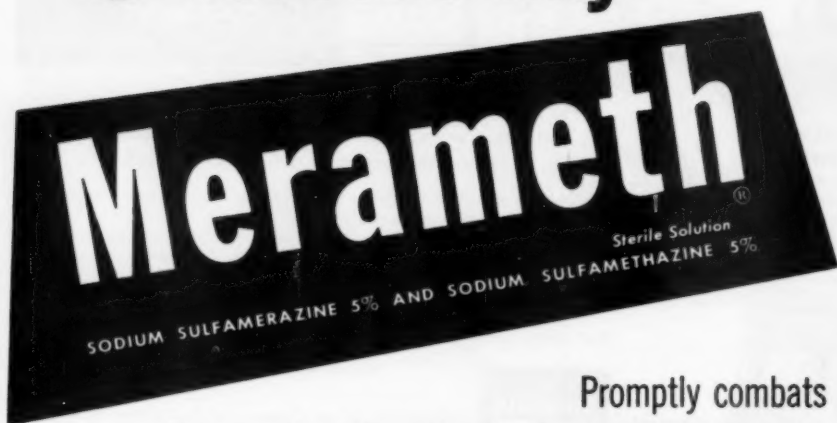


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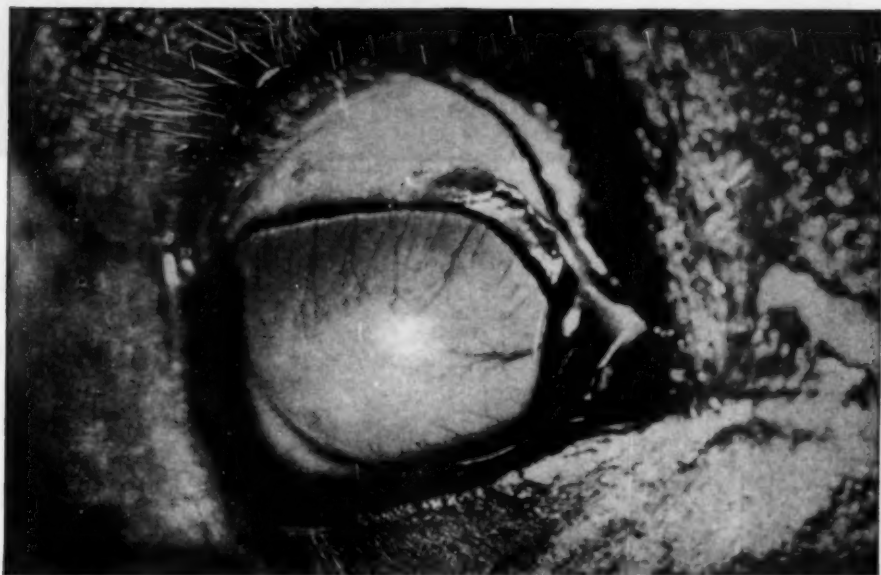
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1. Rogoff, G. (1950), Phthalylsulfacetimide (Thalamyd) in Veterinary Medicine, J. Amer. Vet. Med. Assn., 117:220, September.

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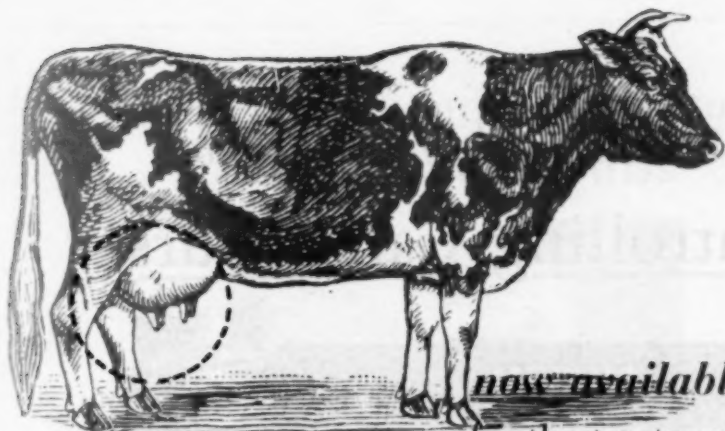


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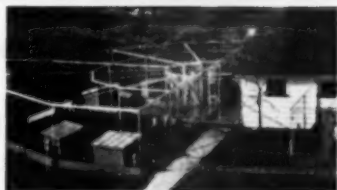
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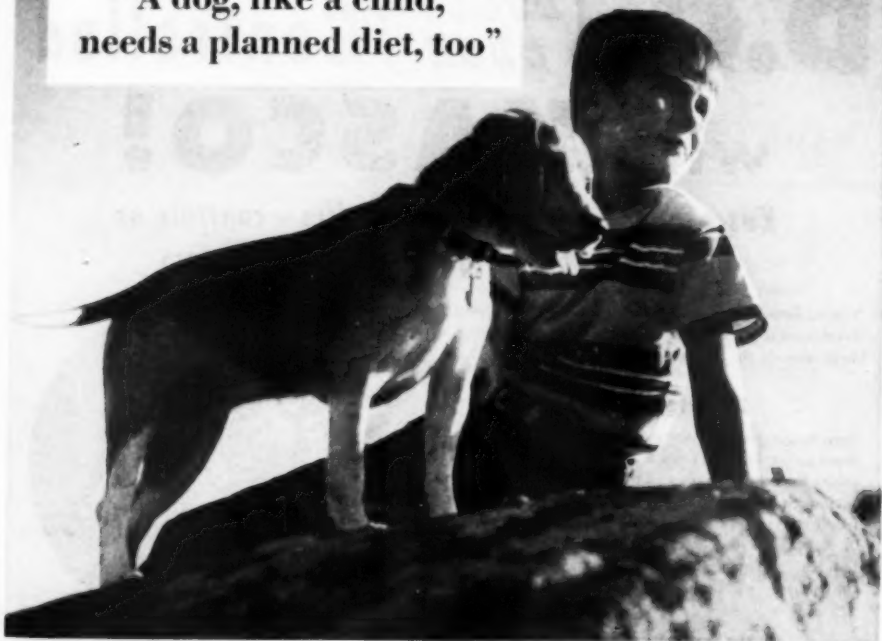


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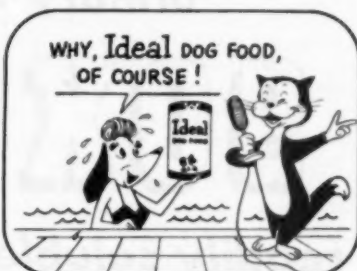
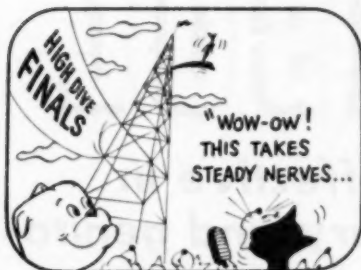
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Plans of a Large and Small Animal Hospital

PETER E. MADSEN, D.V.M., and JOHN A. WILSON, D.V.M.

Sheridan, Wyoming

OUR HOSPITAL is located almost in the center of Sheridan, Wyo. (population about 12,000). We have about $3\frac{1}{2}$ acres of land situated in the bend of Big Goose Creek, a cool mountain stream flowing out of the beautiful Big Horn Mountains of Wyoming and winding its way through our state's fourth largest and most picturesque city.

This is largely a cattle and sheep country; however, our practice is well diversified with beef cattle, dairy cattle, saddle horses, sheep, and pets, each contributing their part of a general mixed practice. In this part of the country, distances between

ranches have always been a handicap to the veterinarian. It is not uncommon to make calls up to 60 miles from town. We have found that by making large animal facilities available for distant ranchers, that even those only a few miles from town prefer to bring their animals in rather than have them treated at the ranch.

THE ORIGINAL HOSPITAL

Our original hospital was a barn which had been remodeled into a veterinary hospital. It was purchased in 1946 from Dr. L. N. Davidson of Sheridan. This structure served its purpose very well except

Drs. Madsen and Wilson are the owners of the Veterinary Hospital in Sheridan, Wyo.



Fig. 1—Entrance to the grounds of the Madsen and Wilson Veterinary Hospital, Sheridan, Wyo. Notice cattle guard in front.



Fig. 2—The general animal hospital. To the left is the corner of the small animal kennels.



Fig. 3—Close-up front view of the Madsen and Wilson general animal hospital in Sheridan, Wyo.



Fig. 4—Left side of general animal hospital showing the separate corrals and individual box stalls in the hospital proper.

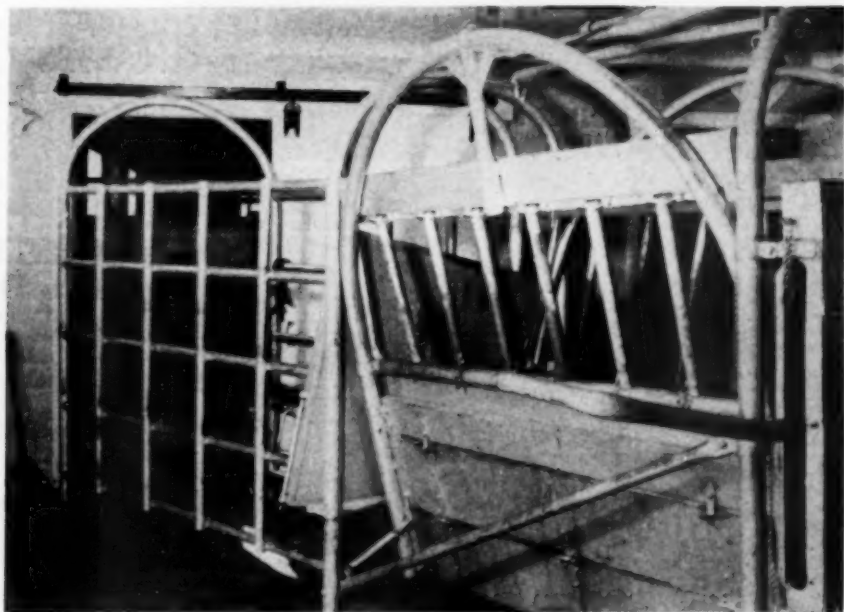


Fig. 5—Cattle chute in large animal surgery room, showing approach.

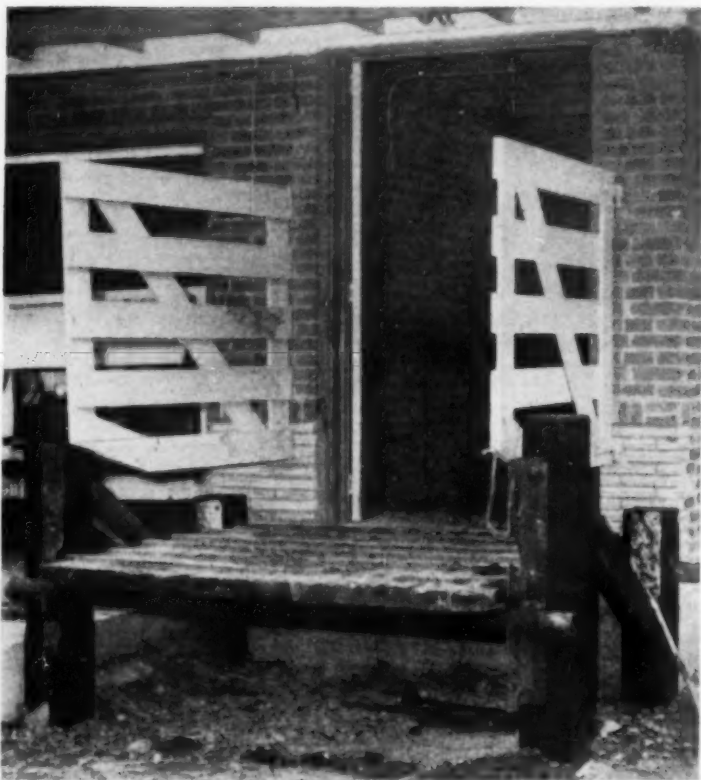


Fig. 6—Unloading ramp for the hospital.

Fig. 7—Small animal surgery of the Madsen and Wilson Veterinary Hospital in Sheridan, Wyo.



that small animal facilities were too limited.

In order to accommodate pet animals, a kennel with 12 runs was constructed separate and apart from the large animal hospital. On March 28, 1950, the large animal hospital, together with all equipment, burned completely. If we had not been completely sold on the idea of a combination large and small animal hospital, this would certainly have been an ideal

time to dispense with it! The idea of not rebuilding never occurred to us.

NEW HOSPITAL BUILT

We immediately added a brick structure to our kennel house and a few weeks later started construction on our new large and small animal hospital.

In planning our new hospital, we found that an architect was of little or no value

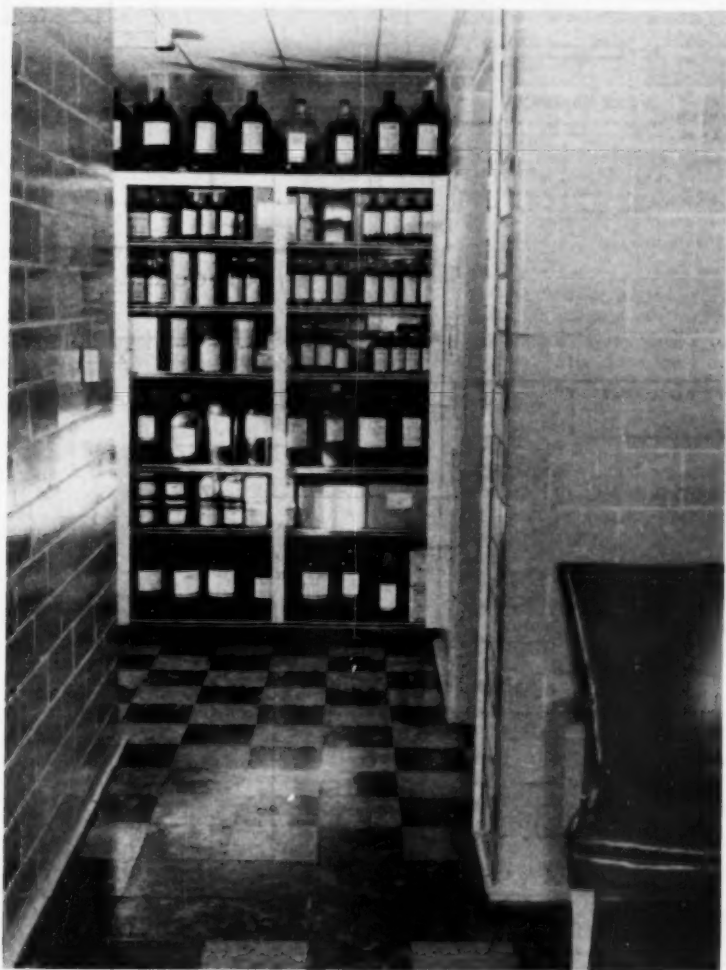


Fig. 8—Display shelf in drug room.

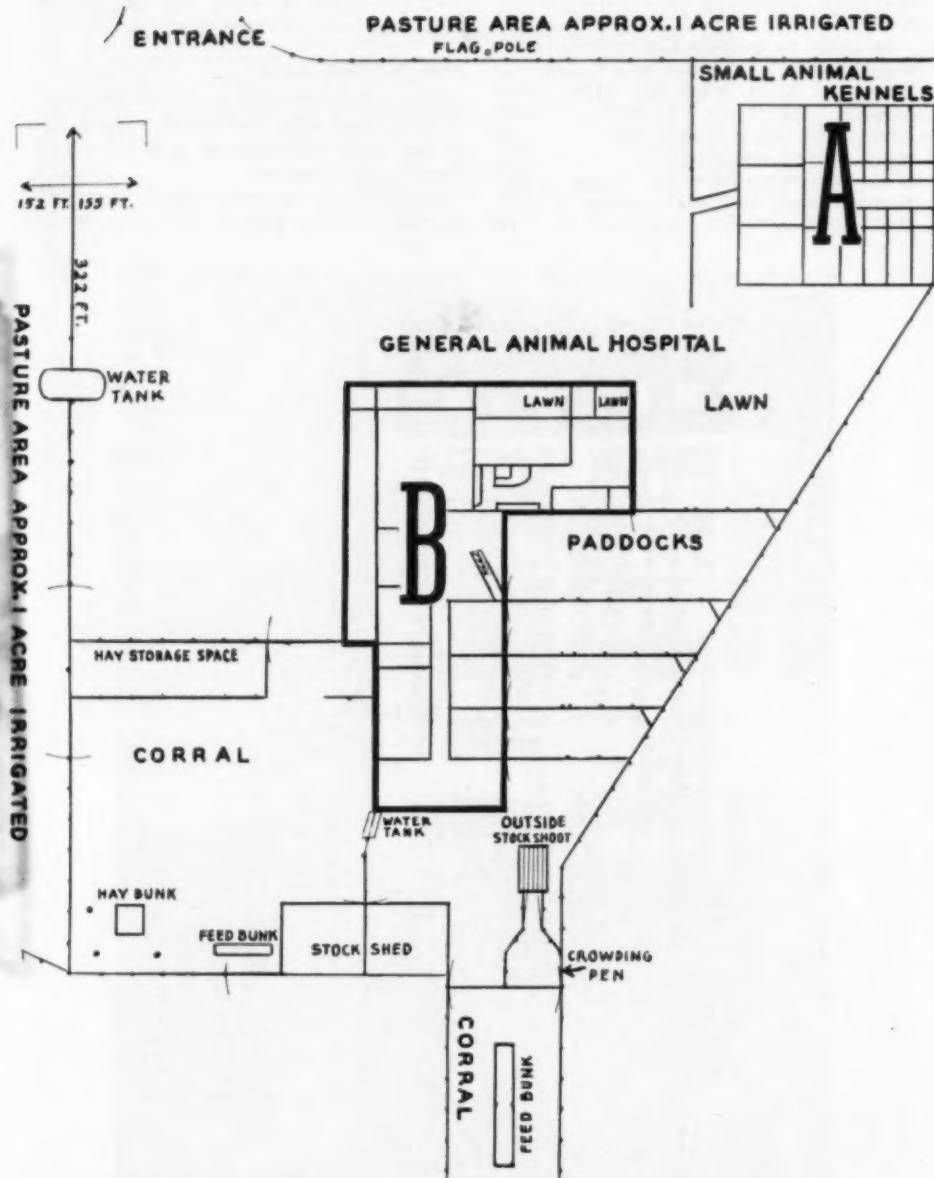


Fig. 9—This diagram shows the position of the small animal kennels (A) and the general animal hospital (B) in the grounds of the Madsen and Wilson Veterinary Hospital in Sheridan, Wyo.

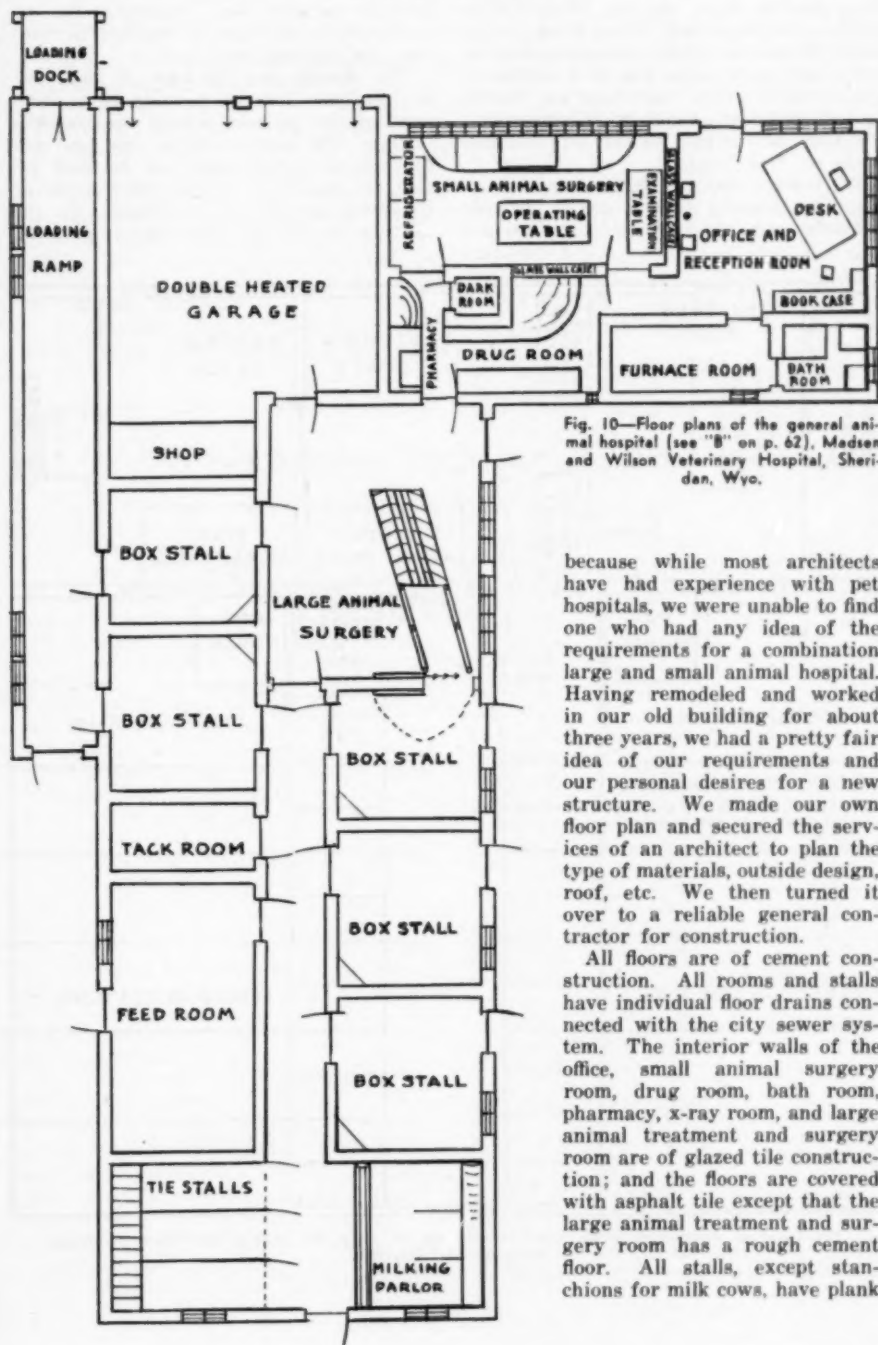


Fig. 10—Floor plans of the general animal hospital (see "B" on p. 62), Madsen and Wilson Veterinary Hospital, Sheridan, Wyo.

because while most architects have had experience with pet hospitals, we were unable to find one who had any idea of the requirements for a combination large and small animal hospital. Having remodeled and worked in our old building for about three years, we had a pretty fair idea of our requirements and our personal desires for a new structure. We made our own floor plan and secured the services of an architect to plan the type of materials, outside design, roof, etc. We then turned it over to a reliable general contractor for construction.

All floors are of cement construction. All rooms and stalls have individual floor drains connected with the city sewer system. The interior walls of the office, small animal surgery room, drug room, bath room, pharmacy, x-ray room, and large animal treatment and surgery room are of glazed tile construction; and the floors are covered with asphalt tile except that the large animal treatment and surgery room has a rough cement floor. All stalls, except stanchions for milk cows, have plank

duck boards which can be lifted out to permit cleaning and disinfecting. The walls of the box stalls, garage, unloading ramp, and feed rooms are of double brick construction. Both buildings are heated by a central heating system with hot water. No heat is provided in the large animal stalls or feed rooms.

We believe that our large animal treatment and surgery room is one of the most valuable units in our building, since it

permits surgery and treatment to be performed in all types of weather in comfort and convenience.

The climate and the type of large animal patients handled permits us to keep most of the animals outside the hospital. Corrals and outside sheds are provided for animals which need not be kept inside the hospital. About three acres of irrigated pasture is invaluable in the summer months for convalescent patients.

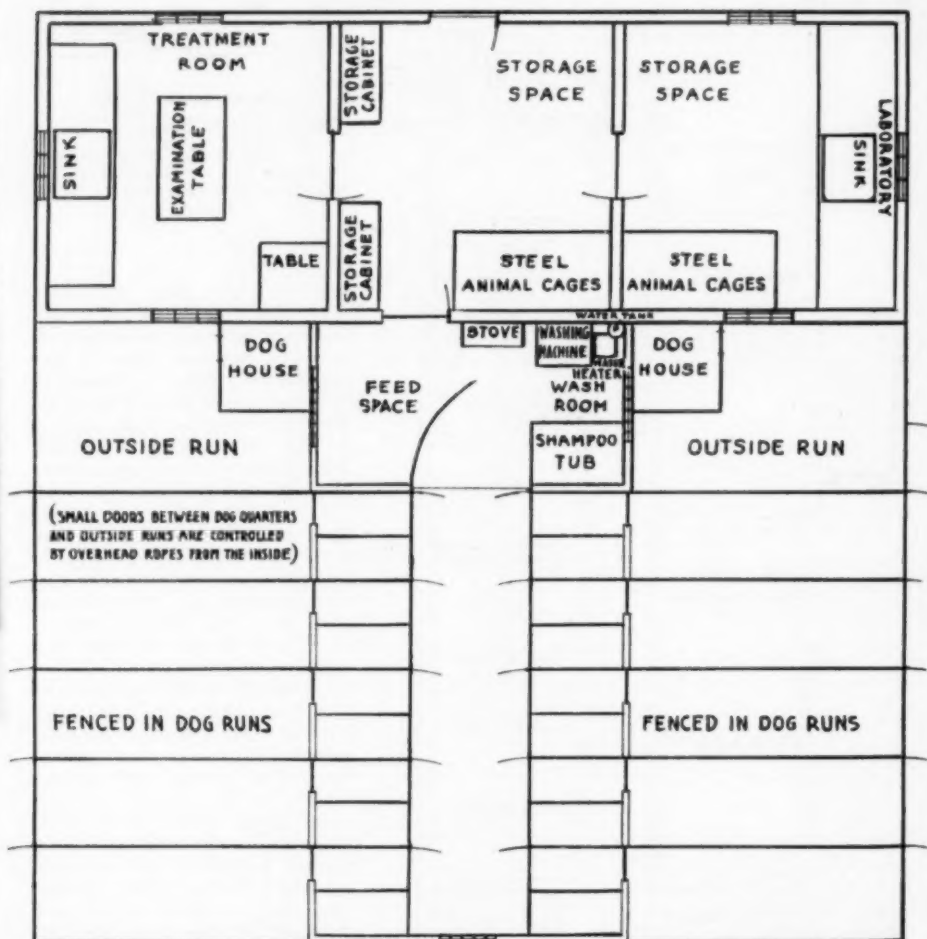


Fig. 11—Floor plans of the small animal kennels (see "A" on p. 62), Madsen and Wilson Veterinary Hospital, Sheridan, Wyo.

DIVISION OF WORK

Ours is a fifty-fifty partnership and no attempt is made to divide the duties. We each take the work as it is presented. We do attempt to arrange our country calls so that only one of us is in the country at a time — at least for any great length of time. This leaves the other partner to take care of emergencies, hospital calls, and to treat hospitalized patients. We employ two laymen at the hospital and usually have a veterinary student during the summer months.

We do not attempt to compete with drug stores in the dispensing of drugs;

however, we keep a complete line of biological and pharmaceutical products for dispensing, and our dispensing business is growing steadily. We feel that this part of our practice is an important and essential part of our service to the stockman.

We have about \$40,000 invested in our layout. This amount of money invested in other fields might bring a greater return; however, we feel that the satisfaction that we derive from it, together with the more complete service that we are able to render, makes it well worthwhile.

The First Pan American Congress of Veterinary Medicine

The First Pan American Congress of Veterinary Medicine, which convened in Lima, Peru, Oct. 20-27, 1951, was attended by 120 delegates, mostly veterinarians from 12 countries in the Western Hemisphere, and from agencies such as the Pan American Sanitary Bureau, the United Nations Food and Agriculture Organization, the Institute of Inter-American Affairs, and the United Nations Educational, Scientific, and Cultural Organization. Total attendance, including governmental attachés, faculty members of the School of Veterinary Medicine at San Marcos University, students, wives of delegates, and others was about 300.

The Congress was organized by the School of Veterinary Medicine of the University of San Marcos in cooperation with the Pan American Sanitary Bureau and was part of the four hundredth anniversary celebration of the founding of the University in 1551. A number of other congresses in several fields of science had been held in Lima since the anniversary celebration was inaugurated last May.

Dr. José Santivanez (D.V.M., COR '44) dean of the veterinary school at the University, was general chairman of the Organization Committee of the Congress, and Dr. Juan Figueroa (D.V.M., OSU '44), professor of zootechnics, was general secretary. Sessions were held in auditoriums at the University, at the College of Medicine, and at the government Hospital for Workers.

THE PROGRAM

The scientific agenda of the Congress included five major fields: Animal Diseases of Greatest Economic Importance; Public Health and Veterinary Medicine; Veterinary Education; Factors Affecting Animal Production; and Elective Topics. Space will not permit listing all of the program titles and participants. There were 23 major subjects, nine round-table or panel discussions, and several special lectures presented during the week in morning, afternoon, and evening sessions. The topics included foot-and-mouth disease; internal and external parasites; protozoan diseases; diseases of poultry; brucellosis; tuberculosis; hydatidosis; rabies; meat and milk inspection; quarantine measures; genetic, nutritional, and environmental factors affecting animal production; organization of veterinary public health programs; the essentials, curriculums, and supervision of schools of veterinary medicine; the distribution and types of work of veterinarians; and various other phases of zootechnics and professional work.

RESOLUTIONS AND ACTIONS

The Congress adopted more than 30 resolutions on such subjects as veterinary education, regulation of veterinary practice, interchange of faculty members, control of diseases of public health importance, effective measures of meat and milk hygiene, control of and public education on hydati-

dosis, education of livestock owners on parasite control, poultry disease control, expanded animal production, and so on.

A resolution recommending the organization of a Pan American Veterinary Medical Association was adopted and, later, implemented by election of officers. The purpose of the association is to sponsor and carry on future sessions of the Congress. Dr. Joao S. Veiga, dean of the veterinary school at Sao Paulo University, Brazil, was unanimously elected as the first president of the newly formed association.

A resolution to hold future sessions of the Pan American Congress of Veterinary Medicine every four years was also adopted. However, in order that the next congress may be held in Sao Paulo, Brazil, at the time of its four hundredth anniversary, it was voted to set the date for the second congress in 1954 instead of 1955. Thereafter, the Congress would be scheduled on the original four-year interval basis which would bring the third meeting in 1959. Considerable interest was expressed by delegates in the possibility of holding the third congress in the United States at the time and place of the annual meeting of the American Veterinary Medical Association.

Great interest was also expressed in the work of the Council on Education of the

AVMA in accrediting schools of veterinary medicine in the United States and Canada, and some delegates from South American countries suggested that the Council should extend its jurisdiction to cover the schools there. However, it was explained that the accepted jurisdiction of the Council covers only the United States and Canada and that the Association would not presume to extend its approval system to other countries. Later, the Congress adopted a resolution recommending the formation of a Pan American Commission on Veterinary Education for the purpose of surveying veterinary schools and making recommendations for their improvement.

UNITED STATES DELEGATES

The delegation from the United States numbered 17 and included the following:

Dr. Donald W. Baker, New York State Veterinary College, who has been serving for the past year as veterinary consultant for the Institute of American Affairs, stationed at Asuncion, Paraguay.

Dr. Benjamin D. Blood, chief of the Veterinary Public Health Section, Pan American Sanitary Bureau, Washington, D. C.

Dr. David L. Coffin, pathologist, Angell Memorial Animal Hospital, Boston, Mass.

Dr. John Delaplane, head of the Department

Officials on the rostrum at the "solemn inauguration" of the First Pan American Congress of Veterinary Medicine, Lima, Peru, Oct. 20-28, 1951



Left to right—Dr. Juan Figueroa, general secretary of the Organization Committee of the Congress; Dr. Lennart Mattson, UNESCO representative; Dr. Benjamin D. Blood, Pan American Sanitary Bureau; Dr. Pedro Dulanto, rector, National University of San Marcos; Dr. José Santivañez, chairman, Organization Committee; Dr. Hans Bendixen, FAO representative.

of Veterinary Bacteriology, Texas A. & M. College, College Station, Texas.

Dr. A. H. Edmondson, practitioner, Pasadena, Calif.

Dr. Ervin Eichhorn, director, Pan American Foot-and-Mouth Disease Center, Rio de Janeiro, Brazil.

Dr. W. A. Hagan, dean, New York State Veterinary College, Ithaca, N. Y.

Dr. J. G. Hardenbergh, executive secretary, AVMA, Chicago, Ill.

Dr. L. M. Hurt, retired head of the Los Angeles County Livestock Department, Los Angeles, Calif.

Dr. P. P. Levine, poultry pathologist, New York State Veterinary College, Ithaca, N. Y.

Dr. Jay L. Lush, professor of animal husbandry, Iowa State College, Ames, Iowa.

Dr. C. L. Miller, practitioner, Oak Park, Ill.

Dr. Robert L. Rennick, Veterinary Corps, U. S. Army.

Dr. James H. Steele, chief of Veterinary Public Health Services, U. S. Public Health Service, Atlanta, Ga.

Dr. Glenn Taylor, Modesto, Calif.

Dr. R. D. Turk, head of the Department of Veterinary Parasitology, Texas A. & M. College, College Station, Texas.

Dr. I. D. Wilson, head of the Department of Biology, Virginia Polytechnic Institute, Blacksburg, Va.

All of those named participated in the program of the Congress as lecturers, members of panel discussions, or as members of the various committees which were assigned to draft reports and recommendations which later became the subject matter of resolutions presented to the Congress. In addition,

Dr. Hardenbergh spoke on behalf of the U. S. delegation at the opening session and Dr. Hagan spoke in a similar capacity at the closing session.

Much credit is due the Organization Committee of the First Pan American Congress of Veterinary Medicine for its efforts in making the event a real success in all respects—scientifically, socially, and entertainment-wise.

Attendance at the Congress was distributed as follows: Argentina, 3; Brazil, 10; Chile, 7; Colombia, 1; Costa Rica, 2; Dominican Republic, 1; Guatemala, 1; Great Britain, 2; Panama, 3; Peru, 68; United States, 17; Venezuela, 1; various agencies, 4.

Notes of the Fifty-Fifth Annual Meeting, U. S. Livestock Sanitary Association, Nov. 14-16, 1951

The following notes were taken from papers and reports presented at the Fifty-Fifth Annual Meeting of the U. S. Livestock Sanitary Association in Kansas City, Mo., Nov. 14-16, 1951. This reporter was not able to attend all sessions, which accounts for the absence of reports on some of the important papers presented.

• • •

The tuberculosis accreditation of states

Part of the assembly at the opening of the First Pan American Congress of Veterinary Medicine in Lima, Peru, Oct. 20-28, 1951



has not eased the restrictions on the interstate shipment of cattle to the extent that is desired or was expected. A joint committee of state and federal men to work out a simplification of interstate shipment regulations is recommended.

Some notable advancements of the year are: (1) the appointment of the National Committee on Eradication of Hog Cholera as one phase of the ever-moving battle against animal diseases; (2) better sanitary control of livestock auctions.

The Mexican border should not be opened for cattle imports until there is no suspicion whatever of foot-and-mouth disease in Mexico.

Livestock men must cooperate with public health authorities, and animal disease research must be continued and extended.—*From President F. E. Mollin's Address.*

Travels in other countries, particularly South America, emphasize the excellent accomplishments in animal disease control that have been made in the United States. Since Argentine beef in cans brings more money to the producer when sold in the United States than does fresh beef when sold to Great Britain, there seems to be little argument in favor of allowing the importation of fresh or frozen beef from Argentina into the United States.

Foot-and-mouth disease in Brazil causes approximately 1 per cent mortality but weight losses of approximately 135 lb. per head. Some animals become extremely emaciated. Apparently no real effort is being made to eradicate foot-and-mouth disease from South America. Therefore, an embargo against beef and cattle from South America and Mexico is imperative.—*L. M. Pexton, President, Denver Union Stock Yards, Denver.*

States which have brucellosis committees are making the most progress in their campaigns against the disease. Regulations are being adopted which require more stringent brucellosis control for the sale of fluid milk. The appropriation for brucellosis control in eight states alone is equal to 62 per cent of the total of such appropriations in all the states. Reprints of the series of articles on brucellosis which appeared in the *Farm Journal* have been purchased and will be distributed. Twenty-four states have legislation requiring testing when a majority of the producers request it. In-

demnity is being paid for reactors in 24 states. A negative test is required for sale in 15 states. Eight states require the owner to pay the entire cost of the program. Twelve states are using personnel other than veterinarians and an equal number are considering it. The major single obstacle is still the shortage of veterinarians. During the year, 5,600,000 cattle were tested, approximately 300,000 less than the year before. The incidence of bovine brucellosis as revealed by agglutination tests was reduced from 3.5 per cent in 1950 to 3.1 per cent in 1951. Over 2,500,000 calves were vaccinated during the year, an increase of almost one-half million over 1950.—*Federal-State Brucellosis Eradication Project Report, A. K. Kuttler, D.V.M., Washington, D. C.*

Three states are now modified accredited areas for bovine brucellosis. Continued expanded swine brucellosis control and research is recommended. The use of the capillary milk test in dairy cattle can be expanded and possibly included in the accreditation program.

The health status of the entire herd is important when individual animals are sold. A subcommittee for the development of a program for the range and semirange areas is recommended. (Numerous other recommended changes in the regulations will be available in the Committee's report.)—*H. G. Geyer, Columbus, Ohio, Chairman, Committee on Brucellosis.*

In 1951, the production of swine was the second highest on record. A survey of livestock sanitary officials, from whom 46 replies were received, revealed that hog cholera is still the No. 1 swine disease. Five of the major swine-producing states reported a decrease, whereas nine states reported an increase in the disease. Swine erysipelas is becoming more prevalent and 17 states reported an increase. The Virus-Serum Control Division of the BAI is to be commended for continuing to control the distribution of erysipelas culture. Edema disease in swine was reported in ten states, seven of them major swine-producing states.

Atrophic rhinitis was reported to be a significant disease in the Middlewest. Twenty states reported its occurrence, seven of them being major swine-producing states. Transmissible gastroenteritis, which is known to be extremely infectious, has

proved to be a problem in 18 states, all of which are major swine-producing states. Seven states reported an increase over previous years. Swine influenza was reported to be decreasing; however, seven states reported that it is still a problem. There is a serious shortage of research on swine diseases, and expenditures for research are much too small when compared to the tremendous losses incurred.—*J. D. Ray, D.V.M., Omaha, Neb., Chairman, Committee on Transmissible Diseases of Swine.*

• • •

The National Committee on Eradication of Hog Cholera emphasized that "it believes eradication of hog cholera is possible — but not so long as mass production and field use of virulent hog cholera virus is permitted."

The possible value of the use of non-virulent cholera immunizing agents both for the prevention of cholera in individual herds and as a means for its eventual eradication is given due consideration. It is recognized that the production and sale of virulent virus can not be terminated suddenly. It is suggested "that as soon as nonvirulent cholera immunizing agents have been fully approved by the Bureau of Animal Industry and a majority of the representatives of the swine industry and our livestock sanitary officials and have demonstrated, through actual farm use that they are thoroughly effective vaccines, steps should be taken to cease renewal of licenses for production of virulent hog cholera virus. In this interim, any state should be permitted to limit or forbid the use of virulent field virus if it sees fit to do so."

The committee also suggests "that until field use of virulent hog cholera virus can be eliminated, the following measures bearing on better control of hog cholera should be approved and activated." These measures cover, in detail, legislation, sanitary recommendations, recommendations for use of immunizing agents, research recommendations, revision of procedures and recommendations for public relations.—*L. M. Hutchings, Chairman, National Committee on Eradication of Hog Cholera.*

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Coccidiosis in cattle was reported by the AVMA Committee on Parasitology in 1948 to be the third most important cattle disease. The annual loss from bovine coccidiosis has been estimated at \$10,000,000 a

year by A. O. Foster, Beltsville, Md. Feces on the base of the tail of calves 1 to 3 months old is the first symptom observed of coccidiosis. There are nine species of coccidia that may infect cattle. The oöcysts have been known to remain viable for eight and one-half months on the ground. Sulfamethazine has proved to be a much better treatment for coccidiosis in calves than any other sulfonamide. The use of portable calf pens has proved to be the most successful way to control and prevent losses from coccidiosis in calves.—*Leonard R. Davis, Ph.D., Auburn, Ala.*

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Foot-and-mouth disease has extended from Venezuela to Colombia in South America, and at the present time it is also reaching epizootic proportions in Western Europe. Newly recognized virus types and immunologic variants make it impractical to consider the use of vaccine in the United States if the disease does occur.

Defense against biological warfare has emphasized the need for prompt reporting of any suspicious disease outbreaks to livestock sanitary officials. Specially trained diagnosticians are available to assist in making the differential diagnoses. The prosecution of the foot-and-mouth disease program should be continued in Mexico without abatement as long as necessary. There is need for a center for adequate virus research in the United States, and also a need for expanded import inspections.—*A. K. Carr, D.V.M., Sacramento, Calif., Chairman, Committee on Foot-and-Mouth Disease.*

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The improved quality of eggs has increased the per capita consumption with benefits to all. Twenty-three per cent of all poultry processed was inspected in 1950. The Production and Marketing Administration, USDA, continues to grade-label individual birds that have not been inspected for wholesomeness. This practice has been condemned as misleading to the consumer. Poultry-processing inspection should be under the jurisdiction of the Meat Inspection Division of the BAI. In 1950, 28 per cent of the reported cases of food poisoning involved poultry products. If lay inspectors are found to be necessary they must be fully trained, paid in proportion to their skill, and operate under the immediate supervision of veterinarians who have had

special training.—*H. J. Stafseth, D.V.M., East Lansing, Mich.*

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Increased incidence of trichinosis in swine led to the following recommendations: further application of proved principles, such as: (1) cooking all meat-containing garbage; (2) processing of pork in sausages in accordance with the Meat Inspection Division regulations; (3) elimination of vectors of the disease.

Recommendations pertaining to poultry inspection included the following: (1) that the inspection service be given all the authority needed to conduct an adequate sanitary program in conjunction with poultry inspection and grading; (2) that the individual grade labeling of noninspected birds be discontinued; (3) that the use of bonded graders be discontinued and that a uniform inspection and label code be developed, as well as uniform regulations governing maintenance and sanitary requirements; (4) that a public education program be inaugurated which would teach the consumer to differentiate between eviscerated, inspected, and New York dressed poultry, and between inspection and grading.—*Report of the Committee on Meat and Milk Hygiene, O. Sussman, D.V.M., Chairman; read by J. S. McDaniel, D.V.M.*

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Reported field trial studies of Rovac (one of the new lapinized hog cholera vaccines) were as follows: 10,147 pigs weighing from 60 to 225 lb. in 74 herds were vaccinated with 2 cc. of vaccine intramuscularly on the medial side of the ham, between October, 1950, and June, 1951. No deaths in the unchallenged pigs were shown to be caused by hog cholera during the four to ten month observation period. There was an over-all mortality of 0.42 per cent from all causes.

Fourteen days to three months following vaccination, 852 pigs were removed to determine susceptibility and challenged with 2 cc. of whole blood virus subcutaneously. Of the 852 pigs, 812 survived. Twenty-two died from what was recognized as hog cholera, which is a 97.5 per cent protection. Among 725 contact exposures there were no losses. Evidence from field trials indicates that maximum protection is developed in seven days with a substantial protection being produced after three days.—*Max J. Harvey, D.V.M., Lederle Laboratories, Pearl River, N. Y.*

A hog cholera vaccine prepared from a rabbit-modified, swine-propagated live virus for use in a 2-cc. dose with 15 cc. of hog cholera antiserum in the vaccination of swine against hog cholera was described.

The results of field vaccination tests on 6,578 pigs revealed no evidence of undesirable postvaccination reactions attributable to the vaccine. Of the 126 hogs (vaccinated by this method as pigs), 96.8 per cent survived a challenge inoculation of 2 cc. of virulent hog cholera virus at market age which, in this study, was three months or longer after vaccination.

Of 24 sows challenged from 11½ to 18 months after vaccination, 95.8 per cent survived.

This rabbit-modified, swine-propagated hog cholera virus vaccine (M·L·V) has been licensed for sale by the U. S. Department of Agriculture and additional data on its use under field conditions is being submitted to the Bureau of Animal Industry.—*A. H. Killinger, Ph.D., Fort Dodge Lab., Fort Dodge, Iowa.*

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Extensive laboratory tests of a tissue culture, modified live hog cholera vaccine have been made. Continued serial passages and desiccation of the virus has resulted in a product that is now undergoing field trials.—*H. N. Casselberry, D.V.M., Berkeley, Calif.*

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The reduction of tuberculin reactors from 1 in 25 to 1 in 500 animals tested has resulted in more reactors being found at autopsy without visible lesions of tuberculosis. The erroneous diagnosis of tuberculosis-like lesions, which is the inevitable result without laboratory confirmation, results in needless tuberculosis retesting in the field. It is impossible to differentiate between certain bovine granulomas and the lesions of tuberculosis without microscopic tissue study. Therefore, the Meat Inspection Division ordered laboratory examination of suspicious lesions before field testing was begun. Of the 222 specimens of lesions received at the Denver Pathological Division laboratory, 108 were suspected of being tuberculous. Of these, 52 per cent proved to be tuberculosis lesions. Although 48 per cent were not tuberculous, this is no general condemnation of the identification of tuberculous lesions on the killing floor, since all the cases submitted were doubtful or uncertain lesions to begin with.—*C. L. Davis, D.V.M., Denver.*

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

The Clinical Use of Cyclaine® (Hexylcaine Hydrochloride) as a Local Anesthetic

A Preliminary Report

J. D. WHEAT, D.V.M.

Davis, California

SINCE THE DISCOVERY of cocaine as the first local anesthetic by Freud and Köller in 1884, chemical search for cocaine substitutes has been made. The first great advancement along these lines was the synthesizing of procaine by Einhorn in 1905, and today this product is still the most widely used local anesthetic. However, no local anesthetic is entirely free of undesirable properties and chemical investigation has continued, with the result that we find on the market today many compounds which differ very little in therapeutic ability. In order to qualify for clinical use, a local anesthetic must possess certain desirable properties. It should not be irritating when applied locally, and must produce anesthesia without damaging tissue. The material must also have a low level of toxicity, as it is absorbed from its area of application. The concentration at which the anesthetic is effective is also a factor in judging the safety of the drug.

In addition to the above characteristics, the duration of anesthetic action, as well as the length of time required for the onset of anesthesia, is important. Goodman and Gilman¹ state "the ideal local anesthetic is one which is effective regardless of locus of administration. It should be active when injected or when applied locally to mucous membranes." For the past year, we have been using cyclaine® on clinical cases and have found the drug superior enough to other local anesthetics in common use today to warrant a preliminary report.

Many times one desires anesthesia to last

for a longer time than is obtainable with products on the market today. Clinical use of cyclaine indicates that this product has the ability to provide long-duration anesthesia followed by a period of lessened sensitivity which makes it highly useful for procedures or diseases requiring prolonged anesthesia.

The product is stable when boiled or autoclaved. Tests with laboratory animals indicate that its toxicity is slightly greater than that of procaine when given intravenously or subcutaneously.² In our clinical studies, no evidence of toxicity has been observed.

Epidural Anesthesia.—Cyclaine has been used on 32 cows in concentrations of 0.5 to 5.0 per cent and in amounts of 5 to 20 cc. The majority of the injections were made in the sacrococcygeal space, using an 18-gauge, 2-in. needle. It was found that the 0.5 per cent solution produced a partial paralysis of the tail and anal sphincter, but did not give surgical anesthesia. After trying various amounts and concentrations of cyclaine, it was found that 5 cc. of a 2 per cent, or 10 cc. of a 1 per cent, solution gave complete surgical anesthesia in the average cow for ninety to 120 minutes, whereas the same amount of procaine gave anesthesia for thirty to forty-five minutes. In addition, cyclaine has the advantage of producing very little motor paralysis in these concentrations, the animal being able to walk and get up and down with no difficulty. The onset of anesthesia is more rapid with cyclaine than with procaine, as surgical anesthesia can be produced within three minutes following completion of the injection.

Cyclaine has been used for epidural anesthesia on 4 horses, 3 requiring surgical re-

¹ Cyclaine is the trade-mark for hexylcaine hydrochloride, which is the nonproprietary name for 1-cyclohexylamino-2-propylbenzoate. Cyclaine is the Sharp & Dohme trade-mark for the compound.

² From the School of Veterinary Medicine, University of California, Davis.

pair of lacerations received during foaling, and 1 repair of a prolapsed rectum. Two were given 15 cc. of a 1 per cent solution and the other 2, 15 cc. of a 2 per cent solution. In all cases, anesthesia lasted for a three-hour period on each animal.

TABLE 1—Cyclaine as an Epidural Anesthetic for Dogs

Weight (lb.)	Amount used	Duration of anesthesia (min.)
25	1 cc. 1 %	28
13	2 cc. 1 %	35
27	2 cc. 1 %	27
33	6 cc. 1 %	62
40	6 cc. 1 %	58
26	2 cc. 2 %	39
28	2½ cc. 2 %	60
35	2 cc. 2 %	30

Paravertebral Nerve Block.—Cyclaine has been used on 6 cows, using the paravertebral nerve block as a means of anesthetizing the flank areas for rumenotomies and cesarean sections. This technique involved blocking the last thoracic and first three lumbar nerves as described by Farquharson.² Five cubic centimeters of the anesthetic solution deposited around each nerve was sufficient. Various concentrations were used. The 0.5 per cent solution produced surgical anesthesia for two hours, whereas the 2.0 per cent solution produced anesthesia for two to two and one-half hours. The 5.0 per cent solution was also tried, with anesthesia lasting for approximately three hours. It has been observed that there is less lateral curvature of the spine with cyclaine than with procaine. This is advantageous in reducing the tension on the sutures and in achieving better approximation of the tissues.

Skin Infiltration.—For infiltration anesthesia, the 0.5 per cent solution is entirely satisfactory and it is unnecessary to use solutions of greater concentrations. The anesthesia produced is rapid in onset, evenly distributed, and of longer duration than with procaine. No evidence of inflammatory changes or hindrance of wound healing was noted following its use. As examples, it has been used for infiltrating the knees of race horses prior to firing, on cattle for rumenotomies, and for the removal of epithelial tumors.

The results of cyclaine on a limited number of dogs as an epidural anesthetic are shown in table 1. Sensory loss preceded loss of motor control and, in the majority of cases, anesthesia was obtained within three minutes following completion of the injection.

Topical Anesthesia.—Cyclaine is capable of producing corneal anesthesia when instilled in the eye. One or 2 per cent solutions may be used without causing any irritation. Duration of anesthesia varies from twenty to thirty minutes.

SUMMARY

The use of cyclaine® for local and regional anesthesia has been discussed and the results given. It is the author's opinion that cyclaine provides a longer lasting anesthesia, and requires smaller amounts than does procaine. It approaches more closely the requirements of the ideal anesthetic than does procaine, as it is effective whether injected or applied topically.

References

- ¹Goodman, L., and Gilman, A.: The Pharmacological Basis of Therapeutics. The Macmillan Company, New York, 1941.
- ²Farquharson, J.: Paravertebral Lumbar Anesthesia in the Bovine Species. J.A.V.M.A., 97, (1940): 54-57.
- ³Beyer, K. H., Latven, A. R., Freyburger, W. A., and Parker, M. P.: A Comparative Study of the Activity and Toxicity of Hexylcaine (1-cyclohexylamino-2-propylbenzoate); a New Local Anesthetic Agent. J. Pharmacol. and Exptl. Therap., 93, (1948): 388-400.
- ⁴Ruben, J. E., and Anderson, E.: Hexylcaine Hydrochloride, A Preliminary Report of its Clinical Use in Comparison With Procaine. Am. J. Surg., 78, (1949): 843-846.
- ⁵Roberts, S. J.: A Comparison of Anesthetics Used in the Bovine Animal. J.A.V.M.A., 116, (1950): 282-285.

Vibriosis in Cattle.—Intrauterine infusions with 1 Gm. of streptomycin in either saline or water-in-oil emulsion appear to be of value in overcoming apparent sterility associated with vibriosis.—Univ. Pennsylvania Bull. Vet. Extn. Quart., April 3, 1951.

Penotrane in Bovine Metritis.—One tenth of 1 per cent aqueous solution of penotrane (phenylmercuric dinaphthylmethane disulphonate) is a safe and most effective agent for the treatment of purulent metritis in cattle.—Vet. Rec., Sept. 15, 1951.

Removal of Osteosarcoma of the Skull, Followed by Roentgen Therapy

LEROY E. JOHNSON, D.V.M., M.Sc.; JAMES R. GAY, M.D., M.Sc.; HARRY W. BOOTHE, D.V.M.

Columbus, Ohio, and Chicago, Illinois

A recurrent osteosarcoma of the occipital region of the skull was encountered in an Irish Setter which was treated satisfactorily by surgical removal of the tumor mass followed by deep roentgen therapy. Inasmuch as an extensive review of available literature failed to reveal references to such cases and since it represented a unique pathological experience at this institution and also posed certain therapeutic problems, it was felt the case deserved reporting.

Report of Case.—A 7-month-old, male, Irish Setter puppy was first seen at the Trader and Boothe Animal Hospital, Chicago, on June 20, 1950. The history indicated that the dog had been healthy except for the recent discovery of an enlargement involving the occiput. The owner stated, and he was quite adamant in this respect, that the tumor had made its appearance overnight.

On July 4, 1950, a tumor resembling cartilage was removed elsewhere; however, the mass resumed its original size within three days. On July 9, 1950, surgical removal of the tumor was again carried out. Three days later, the growth recurred. The puppy was presented at The Ohio State University Veterinary Clinic on July 22, 1950.

Physical examination revealed a normal, healthy animal except for a mass in the occipital region measuring 11 by 6 cm. The mass appeared to originate from a sessile base in the occipital bone and extend laterally to the parietal bones (fig. 1).

On July 26, 1950, the dog was anesthetized and the head prepared for surgery. Prior to shaving the scalp, the hair configuration was noted carefully so that the incision might be placed as inconspicuously as possible. The owner believed this animal to be an excellent subject for show pur-

poses; consequently, scarring needed to be concealed for cosmetic reasons.

A linear incision was made 1 in. lateral to the midline over the right parietal bone and extended posteriorly to a point over the axis. The musculature of the head was freed from the tumor by blunt dissection. Upon investigation of the deeper structures, the tumor was found to occupy considerably more area than had been suspected. The

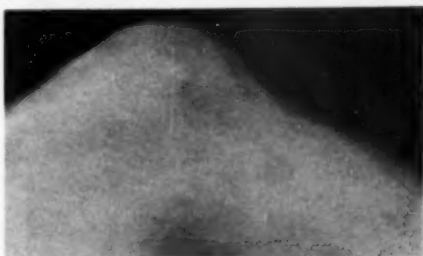


Fig. 1A—Preoperative lateral roentgenogram of the skull showing a dense rounded soft tissue mass in the occipital region. There is erosion of the outer table of the skull just superior to the external occipital protuberance.

neoplasm involved the periosteum and bone for a distance of at least 3 cm. in all directions. The soft tissues immediately surrounding the base of the right ear, part of both parietal bones, the sagittal crest, the external occipital crest, and the nuchal crest were infiltrated by tumor. The pathology appeared to be too extensive to expect a satisfactory result by surgical methods



Fig. 1B—Postoperative lateral roentgenogram of the skull after removal of an osteosarcoma of the occipital region. The roughened area indicates the site of removal of portion of the outer table of the skull. The soft tissue shadow seen in preoperative roentgenogram is now absent.

Dr. Johnson is assistant professor in the Department of Surgery, College of Veterinary Medicine, The Ohio State University, Columbus. Dr. Gay is a practicing neurological surgeon in Columbus, Ohio. Dr. Boothe is a practicing veterinarian in Chicago.

alone. The pathologist* examined a specimen by the frozen section method and reported that the tumor resembled an osteosarcoma with many mitotic cells (fig. 2).

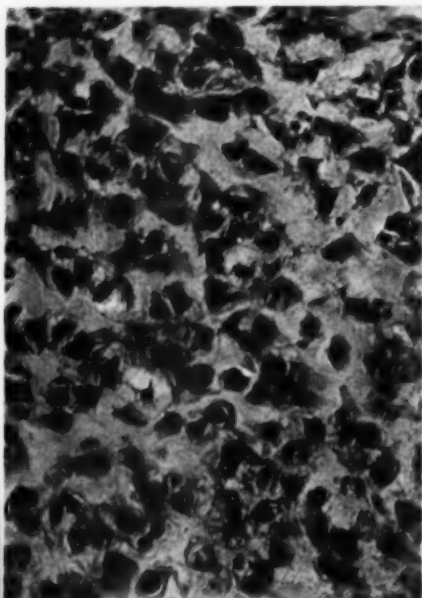


Fig. 2—Photomicrograph showing the irregularity of growth, cellularity, and the pleomorphic and hyperchromatic nuclei (hematoxylin and eosin). $\times 430$.

All of the tissue which could be identified grossly as tumor was removed. In addition, a portion of the occipital bone which contained tumor cells was removed with bone forceps. The wound was then closed in anatomical layers with suitable suture material. Although a careful dissection had been carried out, it seemed likely that some hidden tumor cells remained. Since malignant sarcomas have usually been considered to be sensitive to roentgen rays, a program of deep roentgen therapy was executed. This program was commenced on Aug. 1, 1950, and concluded on Sept. 4, 1950. Radiation therapy was given every fourth day for a total of 11 treatments. The dog was anesthetized with sodium pentothol admin-

istered by the intravenous route and the parietal and occipital regions of the skull were irradiated through a different portal of entry at each treatment. Exposure factors were 200 kv.p., 10 Ma, 25 cm. F.S.D.,* and 0.5 mm. Cu for four minutes, which resulted in the area treated receiving 427



— Ohio State University

Fig. 3—Ulcerative area healed several weeks after roentgen therapy was discontinued. Hair loss in this area, however, was complete.

roentgen units per treatment. The H.V.L.* of this beam was 1.1 mm. of Cu and the port size 6 cm. Total skin tumor dosage for the 45-day period of treatment was 4,679 roentgen units.

Fourteen days after treatment was started, ulceration and a breakdown of tissue occurred around the incision. This

*F.S.D. = focal skin distance; H.V.L. = half value layer.



— Ohio State University

Fig. 4—Appearance of head one month after removal of healed ulcer.

*We are indebted to Dr. Clarence R. Cole, chairman of the Department of Veterinary Pathology, The Ohio State University, for the diagnosis and photomicrograph.

did not interfere with continuance of the x-ray therapy. At the same time, a loss of hair was noted in the treated area which resulted, eventually, in limiting the course of therapy to 11 exposures. Four weeks following the last treatment, the skin ulcerations were healed, but an area of alopecia remained (fig. 3). This small defect was excised. At the time of dismissal, the only alteration in appearance of the dog was a few gray hairs along the site of the incision (fig. 4).

One year after dismissal, the dog was well and no evidence of recurrence of the tumor had been observed.

Summary.—This report is based on a case in which a large area, involving the dorsum of the head, was extensively infiltrated with an osteosarcoma. After two unsuccessful surgical attempts had failed, a combination of surgery and roentgen therapy was used to effect an apparent cure. The complications of such treatment are described and the exposure factors for roentgen therapy reported.

Relationship of the Interval Between Inseminations to Bovine Fertility

Data showing the interval between two consecutive artificial inseminations (4,885 cases) in cows were collected along with the fertility data for each interval, as determined by 180-day nonreturns to service. The distribution of these intervals showed definite peaks in numbers at twenty-one and forty-two days. Based on the total recorded intervals up to and including those of seventy-two days, 56 per cent fell in the eighteen- to twenty-five-day class, while 82 per cent fell in this class when the totals for the first thirty-five days only were considered.

The fertility levels based on nonreturns to service after cows were inseminated two to seventeen, eighteen to twenty-five, thirty-six to fifty, and fifty-one to seventy-two days after the previous insemination were 34, 49, 45, 50, and 54 per cent, respectively. Only the fertility of those cows that returned for insemination at intervals of two to seventeen days differed significantly from the mean fertility level.

An increase of approximately 20 per cent in the number of cows settled at any one estrus is indicated for a practice of breed-

ing all cows, regardless of the interval at which they return from a previous insemination as compared to a policy of breeding only those cows returning between eighteen and twenty-five days after the previous service. — *J. Anim. Sci., Nov., 1951: 988-992.*

One-Stage Method of Hepatectomy in the Dog.—Complete removal of the liver from dogs has been achieved by various methods.

Dogs which have undergone this operation, performed with an aseptic technique, survived for twelve to fourteen hours.—*Proc. Soc. Exptl. Biol. and Med., 77, May, 1951.*

The estrogens will cause estrus, mammary growth, stimulation of the endometrium, increased uterine tone and circulation, improve fattening in chickens, and increase rate of gain in beef steers and heifers, and in wether lambs. Stilbestrol is one of the least costly estrogens.—*F. N. Andrews, Ph.D., Purdue University.*

If a bitch does not pass the fetal membranes ingested after whelping within thirty-six hours, she will go off feed and the puppies will begin to cry because they are hungry.—*L. W. Goss, D.V.M., Ohio.*

A Stain for Differentiating Live and Dead Bovine Spermatozoa

Various staining mixtures for differentiating live and dead spermatozoa have been proposed. The application of a staining mixture containing eosin and nigrosin for the differential staining of live and dead bovine spermatozoa has been investigated. This staining mixture gave results comparable to those with an eosin-fast green mixture when it was mixed in isotonic sodium citrate solution. Mixing in distilled water resulted in abnormally high percentages of dead sperm. Variations in pH from 6.4 to 8.5 and varying the proportion of semen to stain from 1:1 to 1:20 did not affect the percentage of dead sperm.

The concentration of dyes found most suitable was 1 per cent eosin B and 5 per cent nigrosin, although variations in these amounts from 50 to 200 per cent did not alter the accuracy of the live-dead differ-

ential count. The nigrosin background stain mixes satisfactorily with egg yolk diluter, but fewer stained sperm are found from diluted than from pure semen. The nigrosin stain gives a very homogenous background and highlights clearly the morphological characteristics of the sperm. — *J. Anim. Sci., Nov., 1951.*

Abnormality of Newborn Kittens

HARRY H. LUTZ, D.V.M.; LEE HOLDEN, B.S.;
JAMES BROWN, B.S.

Waco, Texas

On July 23, 1950, 5 kittens approximately 1 hour old were admitted to the Lutz Veterinary Hospital. The 5 kittens were attached to each other by the skin around the umbilicus. To pick up 1 kitten, it was necessary to pick up all 5. Although their



Fig. 1—Mother cat with 1 kitten in her mouth. The other 4 kittens are dangling, due to attachment at the umbilicus.

affliction made simultaneous nursing impossible, the kittens appeared normal otherwise.

We advised operating on the kittens to separate them, and the owner consented. A purse string suture of surgical nylon was placed around the skin of each kitten approximately 1 cm. from the attachment of the others, and then, using a scalpel, each

From the Lutz Veterinary Hospital, Waco, Texas.

was separated from the others. Two of the 5 kittens died approximately eighteen hours after the operation. The other 3 kittens had an uneventful recovery. An autopsy on the kittens that died revealed an umbilical hernia in each, with negative findings on the rest of the autopsy.

It was difficult for us to understand how the mother cat was able to give birth to these 5 attached kittens without assistance. Six months earlier, we had done a cesarean section on this same mother cat, as she was unable to give birth to that litter, but all the kittens were normal, and the cat had an uneventful recovery from the operation.

We checked through all available veterinary literature but were unable to find a similar condition reported.

Pregnyl in Developing Estrus.—On one occasion, 4 young sows about 7 or 8 months old were each given 750 I.U. of pregnyl. Two of them came into estrus and were mated, while the other 2 developed a form of subestrus and could not be mated. These were later given a further dose of 1,500 I.U. of pregnyl, came into estrus, and were successfully mated. Estrus usually appears within four to eight days after treatment. A few sows fail to settle to the first service and have to be returned to the boar.—*Irish Vet. J., Oct., 1951.*

Cortisone in Healing Wounds

The influence of cortisone and ACTH on the strength and histological characteristics of healing experimental wounds was studied in rats. The wounds were made by incising through all layers of the abdominal wall in the midline.

Healing occurred normally when ACTH was given in doses of 2.0 mg. daily, but was moderately retarded when the ACTH dose was increased to 4.0 mg. daily. In the cortisone-treated rats, marked retardation of healing was evident.

The authors recommend caution in planning elective surgery for patients under the influence of cortisone or ACTH, and observe that clinical experience has suggested that delay of repair of wounds does occur in patients receiving ACTH or cortisone.—*Cortisone Investigator, Nov. 1, 1951 (Merck.)*

CLINICAL DATA

The Value of Urinalysis in the Diagnosis of Canine Diseases

SEYMOUR D. NORD, D.V.M.

New York, New York

IT IS NOT the intention of the author to contribute anything new to the subject of urine analysis. He has nothing new to contribute. The purpose is once again to bring to mind the value of urine analysis to those whose experience with it is limited.

The routine analysis consists of the following determinations: color, transparency, specific gravity, reaction, albumin, sugar, acetone, indican, bile, occult blood, and a microscopic examination of the urinary sediment.

Color.—In general, the intensity of the color varies directly with the specific gravity. Urine of a low specific gravity is usually colorless or light yellow. Normally, the color is light yellow or yellow. Urine of a high specific gravity is usually deep yellow or amber. Bile produces an amber discoloration. Blood and hemoglobin, if present in sufficient quantities, will also discolor urine. So will certain drugs.

Transparency.—Normally, fresh urine is usually clear. However, crystals often precipitate out on standing and produce cloudiness. Crystals may be present in the urine at the time of passage. They are of no special significance in themselves, but they frequently interfere with the microscopic examination. Blood and bacteria as well as pus also produce cloudiness.

Specific Gravity.—This varies greatly in normal urine. The normal range for dog urine generally given is 1.015 to 1.060. In my experience, it usually runs between 1.015 to 1.030. Rarely is the latter figure exceeded. In chronic interstitial nephritis, the range is generally from 1.003 to 1.015; in acute nephritis, from 1.025 to 1.060; in polyuria not associated with nephritis, from 1.000 to 1.015; in diabetes mellitus, from 1.020 to 1.060. In diabetes insipidus and diabetes mellitus, I am drawing more upon the literature than on my own experience. These diseases are not common, and I venture to say that the experience of any one man with them is limited. Most sources give a higher minimum than 1.020 for diabetes mellitus, but I have had samples which contained sugar

and whose specific gravity was near that point. The fact should be kept in mind, in interpreting readings, that normal physiological conditions produce great variance in the specific gravity of urine. If the specific gravity reading is important in making a diagnosis, a 24-hour sample should be taken.

Reaction.—Since dogs are primarily carnivorous, the reaction of their urine is generally acid. In my experience, most normal urines have a pH of 6 to 7, with 6.5 as the average. A diet heavy in vegetables may produce a slightly alkaline urine. Certain bacteria will produce ammoniacal decomposition and raise the pH sometimes as high as pH 9. Urines that are excessively acid will irritate the bladder and result in polyuria.

Albumin.—This is the most important chemical examination. Blood and pus are usually responsible for heavy albuminurias. Tube casts also are associated with albuminuria. In chronic interstitial nephritis, the amount of albumin is small; in acute nephritis it is moderate to heavy. Other diseases not directly associated with the urinary tract may produce albuminuria, chief among these being ascites, convulsions, renal congestion, and cardiac diseases. In the interpretation of albumin readings, the microscopic findings should receive full consideration.

Sugar.—Diabetes mellitus and renal glycosuria are chief causes of sugar in the urine. Typically, in uncomplicated diabetes mellitus, the urine is light in color and of a higher specific gravity than one would expect from the color. Polydipsia and polyuria are present. A definite diagnosis is dependent on a blood glucose examination or preferably a glucose tolerance test. It should be noted that a report of a trace of sugar may be due to other substances in the urine which reduce copper solutions. In man it is possible for the blood sugar level to be elevated somewhat without sugar being present in the urine. The author has not met with such cases in dogs but points it out for what it may be worth.

Acetone.—The presence of acetone bodies in the urine is the result of faulty fat catabolism which, in turn, is due to faulty carbohydrate metabolism such as may occur in diabetes mellitus. Acetonuria in diabetes mellitus is, therefore, a sign of the severity of the disease.

Dr. Nord is a pathologist at the Veterinary Diagnostic Laboratories in New York City.

Indican.—This is produced by intestinal fermentation. An obstruction in the intestinal tract produces a heavy indicanuria. Other intestinal upsets may result in excessive fermentation and indican production. Only a heavy indicanuria is of any real significance.

Bile.—Bile is present in the urine before it can be detected in the tissues in cases of jaundice. The cause is obstruction of the bile duct, hepatitis, or excessive erythrocyte destruction.

Occult Blood.—This is usually due to cystitis, calculi, trauma, or excessive erythrocyte destruction as occurs in pyroplasmiasis.

Microscopic.—This is the most important part of the examination. The standard sediment is that obtained from 15 cc. of urine after centrifuging at low speed for one minute. The exact values will vary somewhat owing to technique. The following items found in the sediment are important:

1) **Tube Casts.**—Tube casts are present in the majority of normal urines, but the number is generally small. In the author's experience, hyaline casts predominate in the urine from cases of chronic nephritis. The average is about one per 100x field but the number varies greatly. Sometimes none are found. In other cases, two or three per 100x field may be found. It should be noted that these casts will dissolve in alkaline urine on standing.

In acute nephritis, small, fine granular or large, coarse granular casts predominate. In the author's experience, the number of small casts is sometimes as high as five or six per 440x field, but is usually about one or two per 440x field. When large, coarse granular casts predominate, they usually number from one to six per 100x field. It should be noted that these casts will disappear into chronic nephritis.

2) **Epithelial Cells.**—Some epithelial cells are present in all urine. In cases of nephritis, there is often increased numbers of renal cells. In some cases of nephritis, large numbers of renal cells may be present instead of, or together with, tube casts. In these cases, clumps of varying sizes are often found together with the free renal cells.

In cystitis, the desquamated cells are large, flat cells with small nuclei. Although transitional epithelial cells line the bladder, singly these cells look like squamous cells and are often thus labeled. In most reports, no effort is made to distinguish these cells from the squamous cells of the vagina. It

is not even always possible to distinguish them from renal cells. Although desquamated cystic cells are always present in normal urine, the amount is increased in cystitis. The number may vary from two or three per 440x field to 40 per 440x field. Frequently, the cells are present in clumps.

3) **Leukocytes.**—Some leukocytes may be present from the tip of the penis or from the vagina. To avoid this contamination, the first few cubic centimeters of urine passed should be discarded. The presence of any number of leukocytes is indicative of inflammation in the genito-urinary tract. Pyometra is a cause of pus in the urine, as well as pyelitis and other infections of the urinary and genito-urinary tract. Streptococcal infections of the kidneys or bladder frequently are a cause.

4) **Erythrocytes.**—The usual causes of blood in the urine are cystitis and trauma. Frequently, trauma is due to calculi and to catheterization. In the cases of calculi, infection is commonly co-existent. The urine picture is then similar to that seen in cystitis.

5) **Bacteria.**—Normal urine is sterile when passed, but contamination from the vagina may take place. Bacteria in the urine, therefore, is indicative of bacteria somewhere in the genito-urinary system. The most frequent bacteria associated with genito-urinary tract infections are streptococci, *Escherichia coli*, and staphylococci.

6) **Crystals.**—Crystals have no significance in themselves, since they are often found in normal urine. In the author's experience, urate crystals are often found in the urine of chronic nephritis cases and sometimes in acute nephritis.

SUMMARY

To summarize, the following would be typical findings:

Chronic Nephritis.—Clinical symptoms are: general debility, polydipsia, sometimes diarrhea, and eczema. The urine findings are: light color, clear or slightly cloudy, specific gravity below 1.015, slight albumin, hyaline tube casts.

Acute Nephritis.—Clinical symptoms are: diminished flow of urine, pain on palpation over kidneys, anorexia, vomiting, diarrhea, constipation, and elevated temperature. The urine findings are: color normal or dark, specific gravity 1.025 to 1.060, moderate to heavy albumin, either granular tube casts,

renal cells, or both; numerous. Bacteria? Leukocytes?

Cystitis.—Clinical symptoms are: frequent micturition with straining. The urine findings are: variable amount of albumin, cystic cells, erythrocytes, and usually alkaline reaction.

Cystic Calculi.—Clinical symptoms are: hematuria, inability to pass water, or straining to pass water. The urine findings are: same as cystitis, negative, or erythrocytes.

Diabetes Mellitus.—Clinical symptoms are: lack of stamina, listlessness, polydipsia, polyuria, loss of weight with appetite remaining good. In later stages, keratitis, cataract, corneal ulcer, vomiting, diarrhea. The urine findings are: light color, specific gravity 1.020 to 1.060, sugar. Acetone?

Diabetes Insipidus.—Clinical symptoms are: marked polydipsia and polyuria, and emaciation. The urine findings are: light color or colorless, specific gravity 1.000 to 1.005, no albumin.

Some final words of caution are in order. The findings described here are typical findings. Exceptions do occur. A single sample may be misleading; a 24-hour sample is much less apt to be. Ascites can produce a urine picture identical with chronic nephritis.

More information on the state of the kidneys may be obtained by blood urea-nitrogen determinations. The normal value in dogs is 10 to 20 mg./100 cc. of blood. Slight rises may be due to fever. Marked urea retention is due only to nephritis or to obstruction of urinary flow by calculi. Progress in the treatment of nephritis may be followed by the rise or fall of fasting urea nitrogen-blood levels.

References

- Bloom, Frank.: The Clinical Interpretation of Urine Analysis. Cornell Vet., 27, (1937): 130-139.
Boddie, George F.: Diagnostic Methods in Veterinary Medicine. Edinburgh, Scotland, (1944): 142, 145-148.
Brimley, Oscar V.: A Text Book of the Diseases of the Small Domestic Animals. 4th ed. Lea and Febiger, Philadelphia, (1943): 229-232, 257-280.
Coffin, Daniel L.: Manual of Veterinary Clinical Pathology. Comstock Publishing Co., Ithaca, N. Y., (1945): 78-84.
Hawk, Philip B., Oser, Bernard L., and Summerson, William H.: Practical Physiological Chemistry. 12th ed. Blakiston Co., Philadelphia, (1947): 755-800.
Todd, James Campbell, and Sanford, Arthur H.:

Clinical Diagnosis by Laboratory Methods. 11th ed. W. B. Saunders Co., Philadelphia, (1948): 52-166.

Canine Hepatitis and Leptospirosis in Switzerland—A Serological Survey (An Abstract)

Since the original publication on hepatitis contagiosa canis by the Swedish pathologist Sven Rubarth in 1947, a number of authors in different countries have reported on this disease which was apparently unknown prior to that time. While Rubarth observed sporadic cases during the past twenty years in Sweden, and described hepatitis contagiosa canis in 1947 as a distinctive disease caused by a virus, no case histories of infectious hepatitis seem to have been published in other countries before the war. One exception might have proved to be an infectious hepatitis observed by De Monbreun in 1937, but it was classified as atypical distemper.

In the past few years, this disease has been described in the following countries: Sweden (1945 and 1947, Rubarth); England (Innes, 1949; Emslie, 1950; Joshua, 1950; Montgomerie, 1950; Parry, 1950; Pay, 1950); United States (Chaddock, 1947; Storm and Riser, 1947; Coffin, 1948; Siedentopf and Carlson, 1949; Davis and Anderson, 1950; Craig, 1950); Switzerland (Stünzi, 1950; Martinioni, 1950); Italy (Nardelli, 1950); Australia (Whitten, Blood, 1949); Belgium (Florent and Leunen, 1949).

The ever-increasing number of diagnosed cases of hepatitis contagiosa canis and a nearly worldwide distribution suggest that the disease has spread rapidly during recent years.

Serological differentiation of canine hepatitis from other infectious diseases was attempted by Rubarth and Lehnert in 1948. With the aid of the complement-fixation test, these authors showed a high percentage (45%) of the dogs in Stockholm to carry specific antibodies. Experimental transmission of the disease in puppies was successful, and complement-fixing antibodies could be demonstrated on the seventh day after infection, persisting for at least eight months.

In Switzerland, Stünzi observed and described the first cases of hepatitis contagiosa canis early in 1950. Since then, 16 cases have been diagnosed at the Institute of Veterinary Pathology at the University of Zürich, based on pathological and histological findings (i.e., 5% of the dogs examined postmortem).

To establish the rate of infection of the dogs in

Abstract of an article published in the "Schweizer Archiv für Tierheilkunde," Vol. 93, 1951, by K. T. Brunner, M. Scheitlin, and H. Stünzi.

this area, a serological survey was undertaken which at the same time was thought to clear some epidemiological problems. The material included serums of 300 dogs of a private veterinary hospital, sent for examination and treatment for a number of different diseases. Of these dogs, 63 were healthy, merely being boarded in kennels. In addition, a number of samples of organs of dogs examined postmortem at the Institute of Veterinary Pathology were studied. In some of the kennels, canine hepatitis had been diagnosed during the past year.

Antigen Preparation and Technique of Complement-Fixation Test.—Rubarth and Lehnert proved the specificity of the complement-fixation test for hepatitis contagiosa canis, using as antigen a 10 per cent liver suspension of dogs experimentally infected with the disease. Based on their experimental work, a somewhat improved antigen was prepared by deep-freezing and thawing the liver suspension. After short centrifugation (2,000 r.p.m. for 5 min.), the supernatant fluid proved to be clear and was used as antigen. Filtration through Seitz EK filters and holding for thirty minutes at 56 C. did not reduce its activity. The antigen thus obtained can be stored at refrigerator temperature for several weeks.

Based on the antigen prepared from the liver of a clinically, pathologically, and histologically positive case of canine hepatitis, a number of positive serums were obtained. These in turn proved the specificity of the reaction by giving only a positive complement-fixation reaction with two other antigens of equally well-founded cases of canine hepatitis, but not with antigens prepared from cases of distemper, hard pad disease, or leptospirosis.

For the test, 0.5 cc. of the undiluted antigen, 0.1 cc. of the serum to be tested (inactivated), 0.5 cc. complement (1 unit), and 0.4 cc. saline were mixed and kept for one hour at 37 C. The hemolytic system containing 1 unit of hemolysin was then added and the tubes kept for two more hours in the incubator at 37 C. Readings were taken one hour, two hours, and five hours after adding the hemolytic system, the positive results being marked as \pm to +++ according to the degree of fixation. As controls, tests with antigen and tests with complement substituted by saline were added, as well as a positive and a negative serum and a negative antigen.

Results of the Complement-Fixation Test.—Of the 300 serums examined, 136 (45%) contained complement-fixing hepatitis antibodies. Fixation was complete (i.e., +++) with 111, nearly complete (i.e., ++) with 12, and incomplete (i.e., +) with 13 serums. Dogs 2 to 5 years old showed a higher percentage of positives (63%), but no conclusions can be drawn. As a possible contrast, the average age of 16 dogs examined postmortem at the Institute of Veterinary Pathology and found

to have died of hepatitis contagiosa canis was 1 year. This leads to the conclusion that mortality is higher at an early age. A number of control serum examinations were made at intervals of two weeks to four months, when second blood samples were taken. Of 27 control examinations, 24 showed an identical result. Two serums that had been negative contained complement-fixing antibodies after two and three months, respectively, while in one unexplained case, the antibodies could no longer be demonstrated after three months.

Of 13 liver samples taken at the post-mortem examination of 11 dogs and 2 cats, antigen could be demonstrated with 3, all of them pathologically and histologically typical cases of hepatitis contagiosa canis. All the remaining dogs showed no typical findings for this disease and were diagnosed as cases of chronic hard pad disease (4), subacute distemper (3), and leptospirosis (1). The 2 cats died of an acute hepatitis, but no antigen could be demonstrated in the livers, based on the positive material obtained from dogs. Rubarth suggests a related type virus with cats.

Pathology.—The pathology of acute canine hepatitis has been described before (Rubarth, Coffin, Pay, Stünzi, Nardelli, Chaddock, and others). No residual hepatic lesions could be found in 5 dogs which had been serologically positive for the disease and which had been killed, or had died of various diseases. Abortive cases do not seem to damage the liver beyond a complete restitution, in contrast to the acute and often lethal cases.

Discussion.—The surprisingly high infection rate in Switzerland, proved by this survey for a limited area, stands in agreement with similar investigations made in Sweden by Rubarth and Lehnert. It calls for an evaluation of (a) the epidemiological problems involved, and (b) the importance of the disease for the general practitioner.

While the virus of canine hepatitis seems to be highly infectious for the dog, morbidity is of a low order, and the disease often takes an abortive course. Our own observations in a kennel made it clear that some puppies of a litter may die of the disease while the others show no symptoms at all, but have a positive complement-fixing antibody titer when examined somewhat later. Of 4 older dogs in the same

kennel, 2 had a positive reaction, while the puppies that were born later proved to be negative. The disease evidently can take an enzootic course.

Mortality similarly is of a low order; of 300 dogs examined postmortem at the Institute of Veterinary Pathology at the University of Zürich during the past fifteen months, 16 cases of acute hepatitis were diagnosed. This would give a percentage of 5; but assuming an infection rate of 45 per cent among these 300 dogs, mortality is 12 per cent. Because of the usual type of material at disposal for routine postmortem examinations these figures are of limited statistical value.

Concerning the clinical symptoms of canine hepatitis, no conclusive material could be collected from spontaneously infected dogs; only 2 dogs showed complement-fixing antibody formation with repeated serological examination.

The practical value of the complement-fixation test for the diagnosis of hepatitis contagiosa canis lies in the fact that it often allows a separation of at least one disease from the "distemper complex." A demonstration of a rise in antibody titer of course is imperative.

CANINE LEPTOSPIROSIS

Results of Agglutination Tests.—With the serological survey of canine hepatitis, an examination of the serums at disposal for agglutinating *Leptospira canicola* and *Leptospira icterohaemorrhagiae* antibodies was connected. Again, the material gave an accurate picture of the average infection rate in an area, only a few of the serums coming from cases with suspected leptospirosis. The test was carried out with live *Leptospira* organisms, a titer of 1:100 or higher being considered as positive.

Of 302 serums, 103 (34%) contained antibodies against *L. canicola*, *L. icterohaemorrhagiae*, or against both types (co-agglutination). With 32 serums, the *L. canicola* titer was lower or missing; with 60 serums, the *L. icterohaemorrhagiae* titer was lower or missing; while 11 samples showed an identical titer. Therefore, 58 per cent of the 103 positive serums proved a contact with *L. canicola*; 31 per cent, with *L. icterohaemorrhagiae*; and 11 per cent, with identical titers can tentatively be classified as belonging to *L. canicola*.

Of the 136 serums with complement-fixing antibodies against canine hepatitis, 50 at the same time contained leptospiral antibodies. Of the *Leptospira*-positive serums 52 per cent were also positive for hepatitis.

SUMMARY

Serums of 300 dogs were examined serologically for complement-fixing antibodies against hepatitis contagiosa canis (Rubarth), and for agglutinating antibodies against *Leptospira canicola* and *Leptospira icterohaemorrhagiae*.

The hepatitis antigen was prepared by deep freezing and thawing of 10 per cent liver suspensions of dogs which had died of the acute form of the disease.

Of 300 serums examined, 136 (45%) contained complement-fixing antibodies against the disease.

Morbidity and mortality are considered low; of 300 dogs examined postmortem, 16 cases of the acute form of the disease were diagnosed.

Examination of 302 serums revealed 103 (34%) to contain agglutinating antibodies against *L. canicola* and *L. icterohaemorrhagiae* or against both (co-agglutination). Of the 103 positive serums, 60 (58%) were classified as belonging to *L. canicola*, 32 (31%) to *L. icterohaemorrhagiae*, and 11 (11%) with identical titers can tentatively be taken as belonging to *L. canicola*.

Penicillin in adequate dosage prevents extension of "lumpy jaw" but, in the absence of visible retrogression, it is not easy to estimate the period over which medication is necessary. Supplemented by potassium iodide, streptomycin in 5-Gm. doses injected into the lesion daily on three successive days, followed by a few days' rest and a further course of three days, has given promising results.—*The Irish Vet. J.*, Oct., 1951.

Epidemiologic studies of Q fever in northern California have shown that approximately two-thirds of the human cases give a history of contact with livestock.—*Pub. Health Rep.*, Nov., 9, 1951.

It appears probable that the importance of common barnyard birds in the spread of psittacosis frequently is overlooked.

Recovery of *Brucella* from Tissues of Cattle Exposed to *Brucella Abortus*

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THIS REPORT deals with the incidence and distribution of *Brucella abortus* in the carcasses of 15 heifers exposed to *Br. abortus* per conjunctiva, and 3 aged cows exposed to *Br. abortus* by the injection of living organisms directly into the milk cisterns of the udder.

REVIEW OF LITERATURE

It has long been known that *Brucella suis* could be recovered from tissues in widespread areas of the body of the hog. Hutchings¹ states "The site of location of *Br. suis* in the body of the hog seems related to the symptoms observed. In general, a bacteriemia with no observable symptoms and subsequent localization of *Br. suis* in the regional lymph nodes and other organs seems to be characteristic of the disease in many cases in swine." In cattle, on the other hand, it has been stated that *Br. abortus* has a particular affinity for

the udder and associated lymph nodes and genitalia and when these are removed as is done in the packing process, the remainder of the carcass of the infected animal is relatively safe for meat handlers. McCullough *et al.*² state ".....in considering the occurrence of brucellosis in packing house workers, the Bang's reactor cow has received inadequate attention. It has frequently been stated that in reactor cattle, the organism is found mainly in the uterus and udder; hence, the remainder of the carcass provides little or no exposure hazard to the worker. The prevalence of this view is somewhat surprising." Kruger,³ examining the tissues from all parts of the body of a large number of infected cattle, succeeded in isolating *Brucella* organisms from the muscular parts of the diaphragm. Tissues taken from other parts of the animal, such as lymph nodes and muscles, were negative. In recent studies conducted by Manthei and Carter⁴ on the incidence and persistence of blood stream infection in 270

TABLE 1 — Recovery of *Brucella* from Tissues of Cows Exposed to *Brucella Abortus*

Tissue	Animal																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Spleen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Heart	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lung	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kidney	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sternal Marrow	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diaphragm	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thigh	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Loin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Shoulder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bladder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ovary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Uterus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cervix	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Adrenal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pancreas	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RF	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RR	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LF	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LR	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Perifemoral LN	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Popliteal	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Supramammary	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Deep Inguinal	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
External Iliac	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Internal Iliac	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mesenteric	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bronchial	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gastrohepatic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mandibular	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cervical	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Suprapharyngeal	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

+ = Recovery of *Br. abortus*; — = negative; C = contaminated; RF = right front quarter; RR = right rear quarter; LF = left front quarter; LR = left rear quarter.

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cows between exposure and calving, *Br. abortus* was recovered from the blood of 172. In previous studies,^{5,6} it was reported that *Br. abortus* had been recovered from the blood of infected cattle.

At this station,⁷ in a series of experiments, several cows exposed to *Br. abortus* were found to have either a continuous or intermittent bacteremia. These studies would indicate that the occurrence of generalized brucellosis in cattle is more prevalent than is commonly believed.

In McCullough's studies, the carcasses of 100 brucellosis reactor cattle were examined. They were unselected except for the known positive brucellosis reaction. Blood samples were collected for the agglutination test and tissues were obtained for culture. Accessible lymph nodes in widespread areas of the carcass, tonsil, liver, spleen, uterus, and membranes and fetus, if present, were obtained. They were unable to examine mammary tissues under plant conditions. Recoveries of *Br. abortus* were made from one or more areas of the carcass in 42 of 100 cattle examined. In 29, the organism was obtained from tissues other than the uterus or supramammary lymph node. In 10 of these, *Br. abortus* was isolated from numerous locations in widespread areas of the carcass. In commenting on his results, McCullough states "The isolation of *Br. abortus* from numerous sites in a significant number of animals examined emphasizes the potential exposure to *Brucella* encountered by personnel engaged in processing the carcasses of Bang's reactor cattle."

EXPERIMENTAL

The animals used in this study represent cattle exposed to *Br. abortus* during the course of other experimental trials and destroyed for culture at this station rather than being sent to a commercial slaughtering establishment for processing.

Animals number 1 through 15 were exposed to *Br. abortus* by applying a suspension containing approximately 1,029,000 organisms to the conjunctival surfaces. The exposure material conformed to the standard characteristics of *Br. abortus* as measured by sulfur gas production, CO₂ requirement, and dye-plate growth inhibition. This suspension was also injected subcutaneously into guinea pigs to determine pathogenicity for

this species. These guinea pigs developed agglutination titers indicative of infection. In addition, gross enlargement of the spleen and subcapsular hepatic nodules were noted in these animals and *Br. abortus* was recovered from them at autopsy. Thus, the culture used for exposure was pathogenic for guinea pigs at the time of such exposure.

Animal 16 was exposed to *Br. abortus* by injecting approximately 290,000,000 organisms into the natural mammary openings. Animals 17 and 18 were exposed in like manner using 59,000,000 and 570,000,000 organisms respectively. The cultures of *Br. abortus* used for intramammary exposure conformed to the standard characteristics of that species as measured by the above criteria.

Blood for the agglutination test was obtained at slaughter. Standard plate antigen, as produced by the Bureau of Animal Industry of the U. S. Department of Agriculture at serum dilutions of 1:25, 1:50, 1:100, 1:200, and 1:400, was used for conducting agglutination tests. The cattle were killed by stunning and bleeding, after which the hides were removed. The following tissues were cultured immediately: heart, liver, spleen, lungs, kidneys, sternal marrow, muscular diaphragm, urinary bladder, udder, uterus, ovaries, cervix, pancreas, adrenals, thigh, loin, and shoulder muscle; popliteal, prefemoral, supramammary, deep inguinal, internal and external iliac, mesenteric, bronchial, gastrohepatic, cervical, mandibular, and suprathyroid lymph nodes. Cultures were made by excising the tissue to be examined with sterile forceps and scissors and serrating the cut surface of the tissue. The sternal marrow was scraped with forceps and the material inoculated on agar plates. The serrated surface of each tissue was smeared on the surface of agar plates. Bacto-tryptose agar (Difco) was used as the solid medium for plate cultures. At the time of autopsy, pooled tissue triturates of excised tissues were injected into guinea pigs.

The inoculated plates were incubated at 37 C. under 10 per cent CO₂ tension and examined at

TABLE 2 — Parturition and Slaughter Data of Cows Exposed to *Brucella Abortus*

Animal	Agglutination titer at slaughter	Slaughter days after exposure	Parturition	Parturitional cultural results for <i>Brucella</i>	Time of slaughter; day after parturition
1	+ PT —	175	Ab.	Pos.	64
2	— — — —	239	N	Neg.	36
3	— — — —	199	N	Neg.	1
4	PT — — —	248	N	Neg.	4
5	— — — —	192	NP		
6	T — — — —	213	N	Neg.	32
7	+ + + PT	184	Ab.	Pos.	64
8	PPT — —	189	Ab.	Pos.	50
9	+ + + PT	184	Ab.	Pos.	66
10	— — — —	190	N	Neg.	43
11	— — — —	190	Ab.	Pos.	126
12	+ + + PT	206	Ab.		
13	PT — — —	210	N	Neg.	42
14	+ + + PT	202	Ab.	Pos.	83
15	+ + + + P	205	Ab.	Pos.	120
16	+ + + PPT	161	NP		
17	+ + + + +	61	Ab.	Pos.	15
18	+ + + + + P	52	NP		

Ab. = aborted; N = normal; NP = not pregnant; + = complete agglutination; P = partial agglutination; T = trace of agglutination; Pos. = positive; Neg. = negative.

seventy-two and ninety-six hours for colonies which resembled *Brucella*. Colonies were picked and studied further as to morphology, agglutinability with *Brucella*-positive serum, dye plate reactions, and CO₂ requirement.

RESULTS

Brucella abortus was recovered from one or more areas of the carcass in 9 of 18 animals examined. In cases of *Brucella* recovery, the organism was isolated in areas remotely removed from the udder as well as from the udder. The results are presented in detailed form in table 1. *Brucella* recoveries from animals 1, 8, 11, 12, 14, and 15 did not require CO₂ for growth on initial transfer or after guinea pig inoculation with tissue tritirates, although the remaining characteristics conformed to those of *Br. abortus*. The remaining *Brucella* recoveries conformed to the standard characteristics of *Br. abortus* on direct culture and following guinea pig inoculation with tissue tritirates.

Additional data are presented in table 2 on the cattle examined relative to agglutination titer at the time of slaughter, time of slaughter in days after exposure to *Brucella*, and parturition; as well as parturitional and cultural results for *Br. abortus* at the time of normal or abnormal calving. Heifer 12 aborted while on pasture. The fetus and membranes were not found and hence were unavailable for cultural examination. *Brucella abortus* was recovered at autopsy from all except 1 of the animals that had aborted. *Brucella* was not recovered from any case in which the cow had calved normally. Likewise, all animals from which *Br. abortus* was recovered showed pronounced agglutination reactions at the time of autopsy.

DISCUSSION

The results of these examinations are in agreement with the findings of McCullough *et al.*² The findings further emphasize the potential exposure to *Brucella* encountered by personnel handling raw meat originating from cattle infected with brucellosis. These findings are contrary to the popularly expressed opinion that localization of *Brucella abortus* in the udder and internal genitalia minimizes the danger of use of such animals for food purposes with the inherent dangers. It is interesting to note that viable *Br. abortus* was recovered from muscular

tissue in the pelvic limb of one of the carcasses examined. Such recovery may represent either a focus of localization of *Brucella* or the incidental presence of the organism in muscular areas due to a *Br. abortus* bacteremia at the time of slaughter. In this particular study, the recovery or failure of recovery of *Br. abortus* was rather closely correlated with the agglutination titer at the time of slaughter. The failure of recovery of *Brucella* from more areas of the body is not surprising in the sampling procedures as conducted, since even known infected tissues may fail to yield the organism unless the focal area happens to be transected. In view of the widespread areas from which the organism was isolated, one could hypothesize that more recoveries per carcass would have been made had the cultural processes been more effective.

SUMMARY

1) *Brucella abortus* was recovered from areas widespread in the carcasses of 9 of 18 cattle examined.

2) In all cases of isolation of *Br. abortus* from the udder, *Brucella* organisms were also recovered from tissues other than mammary or reproductive tissues.

3) *Brucella* isolations coincided in all cases with higher blood serum-agglutination titers.

4) *Brucella* isolations were recorded at autopsy in all but 1 of the animals that had previously aborted.

References

- ¹Hutchings, L. M.: Swine Brucellosis. M.S.C. Vet., Winter, 1944.
- ²McCullough, N. B., Eisele, C. W., and Byrne, A. F.: Incidence and Distribution of *Brucella Abortus* in Slaughtered Bang's Reactor Cattle. Pub. Health Rep., 66, (1951): 341.
- ³Kruger, H.: Experiments of the Presence of Bang's Bacillus in the Meat of Killed Cattle. Deutsche Tierärztl. Wchnschr., July 30, 1932.
- ⁴Manthei, C. A., and Carter, R. W.: Persistence of *Brucella Abortus* Infection in Cattle. Am. J. Vet. Res., 11, (1950): 175-180.
- ⁵Fitch, C. P., Bishop, L. M., and Kelly, M. D.: The Isolation of *Brucella Abortus* from the Blood Stream of Cattle. Proc. Soc. Exper. Biol. and Med., 34, (1936): 696-698.
- ⁶Soule, M. K.: Bacteriological and Serological Findings in *Brucella Abortus* Infections in Animals and Man. Premier Congress International de Microbiologie, 1, (1930) 606.
- ⁷Washko, F. V.: Unpublished data.

An Experimental Case of Urinary Calculus in a Holstein-Friesian Steer

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THE ETIOLOGICAL factor of urinary calculus formation in cattle and sheep is obscure. Various contributing causes have been indicated. Vitamin A deficiency, mineral imbalance, pH of urine, hyperparathyroidism, infection, and urinary tract irritation have been indicated as possible causes.^{1,2,3} None

lesions of urinary lithiasis in a Holstein-Friesian steer by feeding oxalic acid. This case is merely a preliminary observation, and obviously can not be used to deduce conclusive results.

METHOD

The calf used in this study was 75 days old at the beginning of the experiment. Daily doses of 30 Gm. of oxalic acid were



Fig. 1—Kidney showing degeneration of the collecting tubules.



Fig. 2—Bladder showing thickening and fibrosis of submucous layer.

of these factors, however, seem to be consistent among outbreaks. Undoubtedly the cause is multiple.

Although oxalates have been incriminated as a factor in calculus formation in man, apparently little attention has been given to these salts in herbivorous animals. The sodium oxalate content of many plants in the western regions of the United States, however, is rather high, and undoubtedly the intake in individual animals is great.^{4,5}

The present report concerns the experimental production of clinical symptoms and

given orally. The material was placed in a gelatin capsule and administered with a balling gun. The treatment was continued for forty-five days. The treated animal and another Holstein-Friesian steer of approximately the same age were maintained together. A normal ration of hay and grain with ample water was provided for both animals.

RESULTS

Approximately forty days after the beginning of treatment, the steer showed mild symptoms of urinary tract involvement. Urination became difficult and some straining was observed. A constant dripping of urine from the sheath was noted. An increasing distention of the abdomen

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with fluid was also present. Symptoms of chronic oxalic acid poisoning (tonic spasms, muscular weakness, etc.)^c were not observed.

The animal was killed and autopsied on the fiftieth day following the beginning of

TABLE 1—Chemical Values of the Blood and Urine

	Blood	Urine
Phosphorus	9.4 mg./100%	Trace
Calcium	13.2 mg./100%	0.3 mg./100%
Magnesium	2.5 mg./100%	19.2 mg./100%
Blood serum proteins	6.1%	
Nitrogen		0.86 Gm./100 ml.
Oxalic acid (crystalline)	0.00626 Gm./100 ml.	0.00107 Gm./100 ml.

treatment. About 1 qt. of yellow fluid was present in the abdominal cavity. The bladder was not ruptured. The kidneys were slightly enlarged, but no evidence of crystalline deposits was observed. The ureters were normal.

There was a marked thickening of the bladder wall. No acute inflammatory changes were noted on the mucous surface. When the bladder was cut from its urethral attachment, there was a large amount of urine released from the urethra, indicating blockage at some point in the sigmoid flexures.

The urethra showed a marked gross acute inflammation. Though there was no free hemorrhage, the mucous membrane was markedly injected, particularly at the point of occlusion.

Histopathological examination of the kidneys revealed a marked degeneration of the collecting tubules. The nuclei of the tubular cells were destroyed, and there was some entire cell destruction. The opaque bodies described by Beeson *et al.*³ were not observed. The urinary bladder showed evidence of thickening due to infiltration of fibrous tissue in the submucous layer. Liver, spleen, lymph node, and ureter sections showed no abnormalities.

Results of a chemical examination^a of blood and urine of the animal are shown in table 1.

The histopathological lesions may be sug-

gestive of oxalic acid poisoning. It is considered, however, that the dosage is too low and also no crystals were found to suggest precipitation of oxalate salts. Though no well-formed calculus was found, very fine granular deposits in the urethra are common in clinical cases. The suggestion that oxalic acid or oxalate salts may be instrumental in precipitating urinary calculi is undoubtedly worthy of further research. It is intended that this point will be investigated further in both cattle and sheep.

References

- ¹Newsom, I. E.: Urinary Calculi with Special Reference to Cattle and Sheep. J. A.V.M.A., 92, (1938): 495-502.
- ²Newsom, I. E., Tobiska, J. W., and Osland, H. B.: The Effect of Rations on the Production of Urinary Calculi in Sheep. Colorado Agric. Exper. Sta. Tech. Bull. 31, June, 1943.
- ³Beeson, W. M., Pence, J. W., and Holm, G. C.: Urinary Calculi in Sheep. Am. J. Vet. Res., 4, (1943): 120-126.
- ⁴Marsh, C. Dwight, Clawson, A. B., and Couch, James F.: Greasewood as a Poisonous Plant. U.S.D.A. Circular 279, July, 1923.
- ⁵Fleming, C. E.: The Greasewood, A Range Plant Poisonous to Sheep. Nevada Agric. Exper. Sta. Bull. 115, July, 1928.
- ⁶Rimington, Claude, and Steyn, D. G.: *Psilocanlon Absimile* N.E.B.R. as a Stock Poison. I. Determination of Oxalic, Malic, Tartaric Acids, Etc. Onderstepoort J. Vet. Sci. and Anim. Indust., 1, 1933.

Bracken Poisoning in the Horse

The older veterinary literature gave a prominent place to "staggers" in the horse. This disease was further subdivided into stomach, sleepy, mad, or blind staggers, according to the clinical syndrome exhibited.

It is now known that ragwort poisoning in the horse produces a clinical picture which could well correspond to mad staggers; similarly, bracken poisoning in this animal could fall into the category of the sleepy staggers of the older writings.—*Brit. Vet. J., Sept., 1951.*

A skin condition in calves was investigated and it was found that the skin had been severely damaged by the use of diesel oil in sacks hung over the calves as a means of controlling lice.—*Los Angeles County (Calif.) Livestock Department, 1951.*

^aChemical studies were made by Dr. J. W. Hamilton, Research Chemistry Department, Wyoming Agricultural Experiment Station.

The Morgan Horse

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Justin Morgan stands unrivaled as the famous original sire of the first great family of American horses—the Morgan horse. He was from Thoroughbred and Arabian ancestry through both his sire and dam. He was of a breeding that produced in a single animal an inheritance rich in individual superiority. He thereby obtained a prepotency which carried his extraordinary traits through generation after generation.

This outstanding horse was foaled in 1789. He was named after his first owner. The man, Justin Morgan, was born in 1747 in West Springfield, Mass. Some forty years later, he moved to Randolph, Vt., and died at the age of 51. Mr. Morgan's horse was called "The Figure." He was a dark bay with black legs, mane, and tail. He had a high sharply-cut head; dark, prominent, lively eyes; and small, pointed, wide-set ears. His body was round, short-backed, close-ribbed, and deep. He had thin legs which were set wide and straight. His action was bold and vigorous, his style proud, nervous, and imposing. Justin Morgan was beautiful. He was symmetrical, stylish, and famed for his manners. He died at the age of 32 in 1821.

Morgan horses are usually chestnut, brown, bay, or black. Good individuals stand on an average of 15 hands high, and their average weight is 1,050 lb. There is, however, considerable variation. The breed has always been noted for smooth lines, good style, easy-keeping qualities, and docility. They have good natural knee action, with considerable speed at the trot. Morgans possess tremendous endurance. This valuable characteristic led to the quick distribution of Morgan blood throughout the country. Some of the Morgan families have contributed to the upbuilding of the Standardbred, while others have influenced the American saddle horse. America and Canada alike acquired their first harness race horses from the migration of the Morgan breed. In every horse-breeding

state, the Morgan became a prominent factor in producing saddle horses for utility and show purposes.

The United States Morgan Horse Farm is situated amid the rolling green hills of



Fig. 1—The Morgan Horse.

Vermont near Middlebury. It has been the only field station of the United States Department of Agriculture maintained principally for experimental work in horse production. This breeding farm began around 1906 with an original stud of 6 mares and 2 fillies. A year later, Col. Joseph Battell of Middlebury, Vt., presented 400 acres to the farm. In the deed, Col. Battell stated "In making this gift to the United States, I am actuated in a large measure, by a desire to encourage the breeding of Morgan horses and to effect their restoration to their former leading position in the country, and I trust this gift of land will be used primarily for this purpose."

The Department of Agriculture has consistently carried out the provisions as stated in the deed, although Morgan horses have also been bred as saddle-type animals. Thus, the three-gaited Morgan has today become popular, and has retained the excellent qualities of intelligence, endurance, and beauty for which the breed is noted.

Four main tests have been used at the United States Morgan Horse Farm to measure performance. One involves speed in walking and trotting and length of stride at these gaits while in harness and pulling 60 per cent of its weight. A second test, under saddle, covers similar observations

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of the horse while carrying 20 per cent of its weight. In both tests, the animal travels 1 mile at each gait. For the third performance test, the horse is scored for fatigue, and observed for recovery in respiration and heart rate after trotting 5 miles in harness. The last test requires the horse to be ridden for about 11.5 miles cross country. Thus, the animal travels specific distances at a walk, trot, and canter, and is scored for response to commands, performance of gaits, ease of gaits for rider, and fatigue. These tests reveal marked differences among individual horses, and serve as guides in breeding of improved stock.

The extensive experimental program with the Morgan horses at the United States Morgan Horse Farm has recently come to a close, since the farm is now operated by the University of Vermont without federal aid. A band of about 20 brood mares will be kept for breeding purposes. They will also be used for teaching in the College of Agriculture and for show purposes. There are a few other state colleges which maintain Morgan horses, and perhaps these institutions will carry on some studies on it. No one can accurately predict the future status of this breed. Still today, with his rich heritage and glorious tradition, the Morgan is the ideal light horse. He is an aristocrat—a truly great animal.

Isolation of Newcastle Disease Virus from the Osprey and the Parakeet

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On Dec. 16, 1949, a dead osprey (*Pandion haliaetus*) was submitted for diagnosis from the Zoological Garden at Rotterdam. The bird had been found in an oil patch in the Atlantic Ocean and was taken on board by the crew of a passing ship. On arrival at Rotterdam, the animal was housed in an isolated cage in the Zoological Garden. After a stay of five weeks, the bird died without having shown any clinical symptoms.

Autopsy of the osprey revealed pneumonia and degeneration of the liver. The lung lesions consisted of gray foci of about

1 mm. diameter distributed throughout the lung tissue. The lesions in the liver were characterized by an irregular, dull surface of the liver capsule with some valley-like formations of about 0.5 cm. in diameter.

From an emulsion of the liver, 1 cc. was treated with 5,000 I. U. of penicillin and 1,000 I. U. of streptomycin.

On Dec. 20, 1949, each of 10, 10-day-old embryonating hen's eggs was inoculated in the allantoic cavity with 0.1 cc. of the suspension. Four embryos died on the second day after inoculation. The hemagglutination test with the allantoic fluid from these eggs was positive, and the hemagglutination-inhibition test with specific Newcastle disease immune serum gave a positive result. Therefore, it may be concluded that the liver of the osprey contained Newcastle disease virus.

On May 23, 1950, 3 dead parakeets (*Palaeornis*) from an important bird seller in the South of Holland were submitted for diagnosis. The birds had been imported by air from India three days before. On arrival, 10 of 145 parakeets were already dead and during the next 19 days, another 60 birds died. Thereupon, the remaining birds, which all showed symptoms, were killed and burned. Thus, the mortality was 48 per cent, and no doubt it would have been much higher if the birds had not been destroyed.

The diseased birds showed rough feathers and huddled together in a corner of the cage. Other symptoms were: thin feces, increased respiration, and lack of appetite.

Autopsy of the dead parakeets did not reveal microscopically observable changes.

From an emulsion of the spleens, 1 cc. was treated with 5,000 I.U. of penicillin and 1,000 I.U. of streptomycin and, in quantities of 0.1 cc. each, injected into the allantoic sac of 6, 10-day-old embryonating hen's eggs. On the second and third day following inoculation, 4 embryos died. The embryos showed the characteristic lesions of Newcastle disease infection. The allantoic fluid, collected from these eggs, showed a positive hemagglutination test. The hemagglutination-inhibition test with Newcastle disease immune serum also gave a positive result, so that it can be stated that the spleens of the dead parakeets contained Newcastle disease virus.

In the Dutch psittacosis-ornithosis labora-

From the State Serum Institute (Rijksseruminrichting), Rotterdam, Holland.

tory, Dr. Dekking (Amsterdam) also demonstrated the psittacosis virus in dead parakeets from the same shipment of birds.

To what extent the high percentage of mortality of the parakeets can be attributed to Newcastle disease or to psittacosis is difficult to indicate.

It is the purpose of this report to record another two natural hosts for Newcastle disease and to place them on the long list of birds in which spontaneous infection has been described already.

Response of Dairy Cows with Ketosis to Cortisone and ACTH

In 1947, Shaw reported that an extract of the adrenal cortex was effective for the treatment of ketosis in dairy cows. On the basis of this work and the effective use of cortisone in the treatment of ketosis, it was postulated that ketosis in dairy cows is due to an adrenal insufficiency involving the adrenal cortex and the anterior lobe of the pituitary gland.

The data on 14 cows with ketosis, treated with a saline suspension of cortisone acetate (cortone — Merck), and 2 cows treated with ACTH are given. Both preparations were injected intramuscularly. In most cases there was a marked improvement in appetite within eighteen to twenty hours. Within forty-eight hours, the appetite was usually quite normal. Signs of incoordination and paresis always disappeared within twenty-four hours. The blood glucose usually increased to a level considerably above normal within twenty-four hours and frequently was above normal for two or three days. The blood acetone bodies returned to normal more slowly. The usual pattern was for the acetone bodies to continue at a high level for two or three days, followed by a sharp drop to normal on the fourth or fifth day. The intramuscular injection of 1.5 Gm. of cortisone was sufficient to produce complete recovery in the 6 cases so treated.

Two cases were treated with 1 Gm. of corticotropin (ACTH). Recovery of appetite, increase in milk production, and increase in blood glucose was similar to that obtained with cortisone. Additional treatment was required in each case before recovery was complete. Both cows had histories of previous attacks and had responded to dextrose treatment very slowly,

so it can not be concluded on the basis of these results that cortisone is any more effective than ACTH.—*Science*, Nov. 30, 1951: 574-576.

New Penicillin Salt with Decrease in Reaction Rate

The penicillin salt of N-methyl-1, 2-diphenyl-2-hydroxyethylamine (called P-92), when given parenterally to 312 patients, produced therapeutic results that were at least equal if not better than those produced by other types of penicillin, especially those of the long-acting type.

Some form of reaction developed in 2.8 per cent of the entire series, some of which may have been due to concomitant therapy; the incidence of reaction was 1.6 per cent among those patients in whom P-92 was the only antibacterial therapy. Of 10 patients with a history of a reaction to regular penicillin, only 3 showed any reaction when receiving P-92 penicillin.—*New Orleans M. and Surg. J.*, Oct., 1951.

Temperature Reaction in Rabies Due to "Fixed" Virus

In naturally occurring cases of rabies it has been observed by certain workers that there is a rise in the body temperature.

The present work was undertaken to find out the temperature reaction in rabies due to the "fixed" virus. The animals observed were sheep used for antirabic vaccine production.

The inoculated sheep, after an incubation period of six to eight days, show symptoms of tremors, butting the face in the corners of the pen, rapid masticatory movements as if chewing the cud, and staggering. After remaining in this condition for a day or so, the sheep lie down and ultimately are completely paralyzed. When moribund they are destroyed.

Cases of rabies due to the "fixed" virus show a rise in body temperature, ranging between 2 to 3 degrees F., about two days before the onset of symptoms. This rise in temperature persists for three to four days.

There is no appreciable fall with the onset of paralysis. — *Indian Vet. J.*, Sept., 1951.

The Use of Hyaluronidase in Certain Cases of Mastitis

A Preliminary Report

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State College, Mississippi

THE REPORTS in medical literature on bovine mastitis are numerous. Tuberculosis, anthrax, undulant fever, and paratyphoid can be transmitted by milk from infected cows as well as micrococci, streptococci, and coli. The latter two groups are responsible for actual mastitis cases.

There are a few chemicals and antibiotics that are useful in treating mastitis. At times, some of these seem to be efficient, and again, the results may be disappointing. Many medicants when used by skilled men seem to work well but, when put into general use, their efficiency often seems impaired. Chemotherapy by intramammary infusion is sound and at present more efficient than oral or parenteral administration.

For the last few years, several cases of mastitis have been studied and many treatments have been tried. Many udders were sectioned after various treatments. When closely examined, it was apparent that frequently there was little or no effect or clinical improvement when the medicant did not reach the foci high up in the gland. There is the possibility also that the medicant may not remain in contact with the lesions for sufficient time. Because the udder tissue is sensitive, the number of chemotherapeutic agents that can be used safely is limited.

METHODS

Many glands or quarters may not show clinical evidence of the disease, and yet may be infected. In order to evaluate chemotherapeutic agents to be used in the treatment of bovine mastitis, a method for diagnosis by the clinical findings, as well as a method which will determine the type of infectious agents, is essential. The method of Dr. C. S. Bryan¹ was used in the present investigation. Milk samples were taken from individual quarters showing mastitis before treatment, and then eight to ten days after treatment to allow for healing. This was carried out in all groups of cows studied.

We were primarily interested in treatment with penicillin in combination with hyaluronidase. It is known that this enzyme is used with safety by the medical profession for hypodermoclysis. This

enzyme is also known as the "spreading factor." We had intended to utilize this spreading property of the enzyme for the treatment of mastitis.

An intensive study of the literature on hyaluronidase reveals that hyaluronic acid, which is a component of the cementing substance of tissues, exists as a part of the gel and cement between the cells and acts as a barrier to the diffusion of invasive substances. Hyaluronidase is a specific enzyme which hydrolyzes hyaluronic acid, with a resultant lessening of the viscosity of the gel and a consequent reduction in tissue resistance to fluid absorption. Hechter² has shown that the reduction of the tissue barrier exists for about twenty-four to forty-eight hours and is then completely restored.

Purified hyaluronidase exhibits only a depolymerizing action, while testicular hyaluronidase extracts have been reported to exert a powerful hydrolyzing action on chondroitin sulfate, a component of cartilage substance, as well as on other polysaccharides.

Studies by Seifter³ reveal that animals receiving about 200,000 times the maximum proposed therapeutic dose of hyaluronidase do not show signs of local or systemic injury. From the standpoint of pharmacology and toxicology, hyaluronidase is not a toxic material. Repeated comparable doses produce no effect on blood pressure. Thomas and Warren⁴ state that the repeated injection of the enzyme into tuberculous animals has no detrimental effect even in an infection of recent origin. On the contrary, greatly increased resistance to superinfection is demonstrated when tubercle bacilli are dispersed through the skin with the enzyme. Moreover, the partial immunity conferred on guinea pigs and rabbits by vaccination with heat-killed tubercle bacilli is also increased as a result of dispersion of the vaccine through the skin with the enzyme. Warren⁵ has shown that lesions induced by relatively large concentrations of hemolytic *Staphylococcus aureus* are not enhanced by hyaluronidase administered in conjunction with a saline clysis, and that there is no evidence that the enzyme enhances an infectious process of bacteria or viruses. On the contrary, bacterial and viral lesions are suppressed to some extent.

Some bacteria do not cause fibrosis, and it is understood that where pus cells are numerous, fibrotic tissue does not form readily. However, generally speaking, fibrosis formation is more or less intimately associated with inflammation of the bovine udder in mastitis, which may be the reason for failures of antibiotics, if fibrosis prevents adequate perfusion of the infected areas. Hyaluron-

¹Dr. Arnandez is on the staff of the Veterinary Science Department, Mississippi State College, State College, Miss.

idase, in conjunction with antibiotics, did not seem to exert a pronounced effect in such cases.

We were, therefore, greatly interested at this stage of our investigation when we heard of a complex which combines hyaluronidase with other polysaccharolytic enzymes (fibrex) and is claimed to attack fibrotic tissue in the mammary gland. This product was tested in the latter part of this investigation.

RESULTS

In the first part of the present study, observations were made on udders that were infused with Evan's blue, Pontamin sky blue, and India ink, in various doses from 30 to 50 cc., depending on the size of the quarter. They were infused with the dye alone, and in combination with hyaluronidase in doses ranging from 25 T.R.U.* at thirty minutes, one hour, two hours, four hours, six hours, and eight hours before slaughter, and were immediately frozen. About 50 udders were studied in this manner, and photographs were made. Many were lost by poor coöperation. The best photograph shows that the penetration of the dye and enzyme in one quarter is complete, whereas with the dye alone in the other quarter (of the same udder) the penetration is incomplete. This occurred only in udders that were nonfibrous. It was also noted that the dose required was 30 to 50 cc.

Also, the chart shows that at least 150 T.R.U. of the enzyme are necessary to obtain complete penetration, and that 200 units might be better in most cases. Doses of 300 units caused no damage to the udder tissue. Microscopic sections of all udders were made and examined for damage. One cow was given a test dose of 450 units of enzyme and as yet shows no damage clinically. The chart also shows that complete penetration is evident between thirty minutes and one hour after injection.

For the clinical report, several groups of cows will be described. These cows were from the college dairy herd and the surrounding territory. It required approximately thirteen months to accumulate the data listed below. As far as possible, Udalls' classification of udder lesions was utilized throughout this study.

In the first group were 10 cows, an aggregate of 22 infected quarters, with No. 1 and No. 2 type mastitis. Clinically, they

were nonfibrous and were new cases, one to two days old. All were injected with 150 units of hyaluronidase and 200,000 units of penicillin (buffered crystalline penicillin G).

Of the 22 quarters treated, all seemed to clear up, but eight recurred after eight to ten days. Even though the antibiotic alone probably is able to take care of infection in No. 1 cases, the promptness with which most quarters seemed to clear up could be an indication that the enzyme aids or increases the efficiency of the antibiotic.

In the second group were 23 cows, with 46 diseased quarters. Fourteen were possibly of the No. 2 class, 28 of the No. 1 class, and 4 were definitely of the No. 3 class and fibrous. The treatment of these fibrous cases will be described later. Thus, we have 42 quarters which were divided into two lots of 21 each.

The first lot was treated with penicillin (200,000 units) with 150 units of hyaluronidase or diffusin. The other 21 quarters were treated with penicillin alone. Again, in the enzyme lot the recoveries seemed more prompt, and there were only six that recurred. Two of these, when retreated as above, recovered. Of the second lot, treated without the enzyme, all had at least two treatments, and 11 had to have three treatments. Of this group, only 14 seemed to recover, with seven recurring. Thus, there were 80.9 per cent recoveries in the enzyme lot, and 66.6 per cent in the antibiotic-alone lot.

In the third group were 26 cows, with an aggregate of 44 diseased quarters. These were of types 1 and 2, but 4 were clinically fibrous. They were given the enzyme plus 200,000 units of penicillin. Seven showed no response whatever; 33 apparently cleared up, but 11 recurred. The remaining 22 cleared more or less promptly (50%). It is well understood that some of those that did not clear up might have been infected with penicillin-resistant organisms. In the four that were clinically fibrous, no response was in evidence. Of the 11 that recurred, five definitely became fibrous clinically after seven or eight days.

The next group of 30 cows, with 63 quarters of types 1 and 2 infection, were considered as controls for the above group of 26 cows. They were treated with penicillin alone. Eight quarters were definitely fibrotic; 16 quarters failed to respond even

*T.R.U. = Turbidity reducing unit is a measure of hyaluronidase activity.

with three or four treatments; 47 seemed to respond, but 14 recurred and all of these became definitely fibrotic after seven or eight days. With 74.5 per cent recoveries in the control group and 50 per cent in the enzyme-treated group, addition of hyaluronidase did not contribute to the percentage of recoveries.

The next group of 22 cows, with 46 infected quarters, were first treated in the routine way, namely, three times with penicillin only, twenty-four hours apart. These were all type 2. Twenty-one (45.6%) recovered. Of the remaining 25, 13 gave no response, and 12 became fibrotic clinically after seven or eight days. The 13 that did not respond and the 12 that became fibrotic, were then treated with penicillin and fibrex, twice, forty-eight hours apart. All of these cleared up.

A group of 32 cows, with 68 diseased quarters, was selected for type 2 and 3 cases. Thirty-four of these quarters were treated with penicillin and wydase (on the left side), and penicillin and fibrex in the 34 other quarters (on the right side). All had two treatments, forty-eight hours apart. Of the 34 treated with wydase, 26 (76.4%) showed some response. Of the 34 treated with fibrex, all responded after the second treatment. Eight of the first 34 that had not responded were then treated with penicillin and fibrex, and all but two responded, giving 95.8 per cent recovery. These two were then treated with fibrex alone and finally cleared up, giving 100 per cent recovery.

Finally, from all the groups, we selected type 3 quarters here and there, until the total number amounted to 24. These were all treated with fibrex and penicillin. All but one (95.8%) cleared.

While working with only hyaluronidase in the beginning of this study, we had located, over several months, 14 cases of greatly enlarged and edematous udders just after calving. These were treated with hyaluronidase. In five of these, the response was prompt. Four responded more slowly and they had to be given more than one treatment. Three were very slow in responding, and possibly they would have recovered without treatment.

SUMMARY

Hyaluronidase in combination with antibiotics might be of some use in No. 1 type

quarters and in early cases of mastitis by speeding up recovery. Further studies are needed. Although we used the Bryan method in this work, we do not feel that it is sufficiently accurate by itself.

Fibrex, a combination of enzymes which act on fibrotic tissue, is definitely a benefit. Apparently it helps the antibiotic to reach the walled-off foci high up in the gland, destroy fibrotic tissue, and permits the gland to heal.

References

- ¹Bryan, C. S., and Mallman, W. L.: Microscopic Techniques for Determining Bacteriological Quality of Milk. Michigan State College Circular Bull. 186, June, 1944.
- ²Hechter, O.: Reconstitution of the Dermal Barrier to Fluid Diffusion, Following Administration of Hyaluronidase. Proc. Soc. Exptl. Biol. and Med., 67, (1948): 343.
- ³Seifter, J.: Studies of Pharmacology and Toxicology of Testicular Hyaluronidase. Ann. New York Acad. Sci., 52, (1950): 1142.
- ⁴Warren, George H.: Influence of Hyaluronidase on the Course of Experimental Infections with Certain Bacteria and Viruses. Ann. New York Acad. Sci., 52, (1950): 1159.

Bracken Poisoning in Sheep

Bracken poisoning has been produced experimentally in sheep by feeding fresh bracken, although it was found difficult to induce sheep to eat adequate quantities of the plant. The apparent absence of natural cases in sheep is probably due to their selective grazing habits. Bracken poisoning in sheep produced the same symptoms and postmortem findings as in cattle.

The poisoning of ruminants fed on bracken appeared to be closely related to the stage of growth, young bracken being most toxic.—*J. Comp. Path. and Therap.*, April, 1951.

Foot Rot in Sheep.—Foot rot in sheep is a very intractable disease. The essential part of treatment is drastic paring away of all diseased and underrun horn. This can not be done too effectively. Even large doses of the sulfonamides are not effective, as they are in the analogous disease of cattle. Of many agents applied locally, none have been satisfactory. Possibly 30 per cent copper sulfate or 10 per cent formalin are as good as any.—*Irish Vet. J.*, Oct., 1951.

Canine Blastomycosis in the United States

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REPLIES TO A RECENT inquiry sent to small animal practitioners and pathologists in various parts of the United States and Canada indicate that canine blastomycosis is either a rare disease or is passing unrecognized. This malady has been diagnosed in the dog seven times in the last four years, and the following reasons would suggest that there are probably many cases of the disease undiagnosed: (1) Failure to necropsy many dogs; (2) lack of knowledge of the disease; (3) similarity of this affection to other granulomata; (4) greater frequency of recognition of disease in man as compared with the dog; (5) the first canine cases were described as early as 1912, by Meyer¹² and since that date there have been only 10 cases reported in the literature.

It is the purpose of this paper to study and analyze not only our cases but also those that have been described in the literature, with a view to determining the salient features of the disease in the dog. It was thought that by doing this its recognition would be considerably facilitated.

Table 1 was constructed for the purpose of summarizing the information obtained from the cases reported in the literature and also those cases studied by the authors. In tabulating the data from cases previously reported, every attempt has been made to adhere as closely as possible to the original descriptions.

Definition.—Canine blastomycosis is a chronic infectious disease caused by a yeast-like fungus, *Blastomyces dermatitidis*, and characterized by the formation of granulomatous processes which often suppurate. It is most commonly observed in the lungs

and skin but also found, usually to a lesser extent, in other tissues.

Three distinct yeastlike fungi are recognized as causing blastomycoses in human beings: *Cryptococcus neoformans* is the cause of European type of blastomycosis; *Blastomyces brasiliensis* is the etiological factor in the South American form of the disease; and *B. dermatitidis* is the cause of North American type of blastomycosis. Since blastomycosis caused by *B. dermatitidis* is the only blastomycotic disease which to our knowledge has been reported in the dog, it has been considered sufficient to refer to this malady as canine blastomycosis.

Etiology.—*Blastomyces dermatitidis* is a thick-walled, spherical, budding, yeastlike fungus in tissues, pus, and exudates, and in cultures at 37 C. In cultures at room temperature, it develops slowly as a moldlike

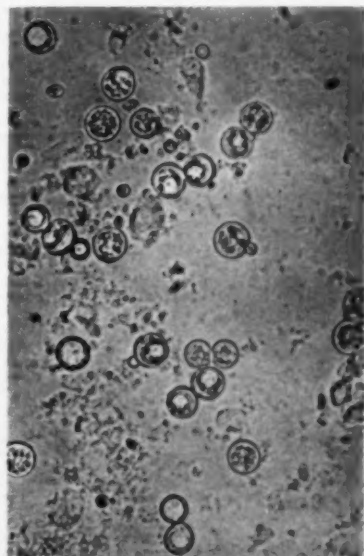


Fig. 1.—Aqueous smear of exudate from lung (black and white). Single and budding spheres with double-contoured, refractile walls. 410 x.

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TABLE 1—Cases of Canine Blastomycosis

Case	Author	Age, breed, sex, location	Course, symptoms	Lesions
1-2.	Meyer ¹⁷ (1912) 2 cases	No data	No data	No data
3.	MacLane ⁸ (1916)	Chicago		Lungs—resembled military tuberculosis; pulmonary parenchyma riddled with grayish-white opaque nodules.
4.	Martin, Smith ¹⁰ (1946)	No data	No data	Lungs—"spontaneous pulmonary blastomycosis."
5.	Foshay, Madden ⁶ (1942)	2 yr.; Pointer; Madeira, Ohio	3 wk., loss of wt., uneasy and restless, evidence of much pain, stiffness of gait.	Cutaneous swelling including head and legs, later multiple subcutaneous abscesses from muzzle to tail. Lungs—considerable pneumonic consolidation; abscesses in lungs, bronchial lymph nodes, liver, spleen, kidneys and intestines.
6.	Madsen ⁹ (1942)	Hound; male		Lungs—thoracic adhesions, with nodular granulation tissue in thorax and lungs; suppurative mediastinal lymph nodes, numerous minute, grayish foci scattered throughout the liver.
7.	Anthony ¹⁸	5 yr.; Coon Hound; male; N. Car.	3-4 wk., temperature normal, dyspnea, anorexia, stiffness of gait, depressed.	Lungs—studded with small nodules.
8.	Seibold ¹⁷ (1946)		High fever, respiratory distress, terminated rapidly in death.	Lungs—solidified; mass of pathological tissue extending from left kidney and involving large and small intestine; tubercle-like lesions on liver, diaphragm, spleen; peritonitis.
9.	LaCroix, Riser, Karlson ⁹ (1947)	3 yr.; Collie; male; Chicago	3 wk., depressed, purulent discharge from eyes, scleritis, dyspnea.	Lungs—uniformly dotted with military tubercles; no abscesses, atelectasis, or consolidated pneumonia.
10.	Riser ¹² (1947) (Personal communication)	1 yr.; mixed Terrier; Chicago	3-4 wk., in good health but large fluctuating abscess in neck region. Dog returned in weakened condition. 3 wk. later, became comatose and died.	Peripheral lymph nodes greatly enlarged and contained a mucoid watery fluid. Lungs—extensive lesions.
11.	Riser ¹² (1947) (Personal communication)	8 mo.; Dalmatian; Chicago	Swollen, inflamed joints of forelegs, pulmonary symptoms developed; pus flowed from nostrils.	Most of peripheral lymph nodes greatly enlarged and two of them were draining. Lungs—extensive lesions.
12.	Riser ¹² (1947) (Personal communication)	6 yr.; Doberman Pinscher; male; Chicago	Excellent health except for lameness of the hind leg. Returned second time with considerable swelling on leg and metatarsal region.	Radiograph showed considerable destruction of one bone; lesion was extensive and hemorrhagic, involving the bone and surrounding tissues. Lungs—abscessation of lungs and mediastinal lymph nodes.
13.	Saunders ¹⁹ (1948)	5 yr.; Cocker Spaniel; male; Ames, Iowa	4 wk., first examination, in good nutritional condition; foot laceration and growth on left ear. Later lameness of left leg, anorexia, progressive weakness, terminating in death.	Microscopic examination of tissue (biopsy) disclosed infectious granuloma and numerous B. dermatitidis. Left tarsal swelling; large intermandibular fluctuating swelling, with subsequent ulceration here and later on other parts of body. Necropsy refused.
14.	Riser (1950) (Personal communication)	10 mo.; Boxer; female; Chicago	First examination revealed 15-20 skin lesions; temperature 104.0 F; 2 days later more skin lesions; respiratory distress. Following day convulsions; euthanasia performed.	Developed granulomatous skin lesions resembling histiocytomas on body, legs, and between toes. Lungs—extensive chest lesions.
15.	Ramsey and Carter (1950)	5 yr.; Irish Setter; female; Ames, Iowa	4 wk.; loss of wt.; depression, anorexia, extreme emaciation, blindness.	Lungs—extensive grayish-white nodules distributed throughout lung parenchyma. Nodules moderately firm without calcification. No abscessation. Focalized pleuritis with strong adhesions between right lung and thorax.
16.	Ramsey and Carter (1950)	9 mo.; Walker Hound; male; Waterloo, Iowa	3 wk.; lameness in thoracic limbs, pyrexia, dyspnea, dehydration, progressive weakness.	Lungs—lesions diffusely distributed throughout all lung parenchyma; cutaneous lesions; purulent synovitis of carpal and fetlock joints.

*This case was also described by Seibold (1946).

filamentous fungus. The average diameter of the forms found in tissues, pus, and exudates is 5 to 15 μ . Figure 1 is a photomicrograph of an original smear from the pulmonary exudate of case 15. The procedures necessary for the isolation and identification of *B. dermatitidis* are summarized by Martin and Smith.¹¹ Considering that no other organism similar in appearance to *B. dermatitidis* has been, to our knowledge, recovered from the dog, it is reasonable, we believe, to consider cases diagnosed by histological or microscopic examination as positive cases of canine blastomycosis. However, considering the paucity of knowledge of the disease at this time, every effort should be made to isolate, cultivate, and identify the organism.

Susceptibility.—Table 1 indicates that age, sex, and breed are probably not significant factors.

Occurrence.—In the dog, the disease has been reported from Illinois, Ohio, North Carolina, and Iowa.

It is interesting to note that 6 of the affected animals were located in Chicago and its environs. That the disease is probably more prevalent in Illinois than in other states is suggested by the fact that Martin and Smith¹¹ found that, up until 1939, 20 per cent of all human cases reported in the United States were located in Illinois.

If the distribution of the canine disease parallels that of the disease in human beings in the United States, it should be found in most of the states bordering the

Mississippi and Ohio Rivers and the Pacific and Atlantic Coast states.

Symptoms and Course.—The inception is usually insidious, and in most instances the infection is well established before the owner realizes the dog is sick. Usually, the course of the affection from the first indication of the sickness to termination has been several weeks. The syndrome observed has been that of a chronic debilitating disease.

Depression, continuous loss of weight, and a diminishing appetite were apparent. In the terminal stages of the pulmonary form, respiratory distress has been observed and a purulent discharge occasionally exuded from the nostrils. In some cases, pyrexia was noted.

Location of the organism in the skin and other tissues may produce a variety of symptoms; for example, in the involvement of limbs, stiffness of gait and local manifestations of pain were observed.

Lesions.—With the possible exception of Meyer's 2 cases and Saunders's case, all of the dogs listed in table 1 had extensive pulmonary lesions. Grossly, the lungs have been observed by the authors to show a characteristic mottled appearance (fig. 2) of grayish-white and pink. This singular effect is produced by the diffuse distribution of grayish-white nodules throughout the lungs. The nodularity of the surface of the lung is variable depending upon the extent of the infection.

Pulmonary blastomycosis may produce

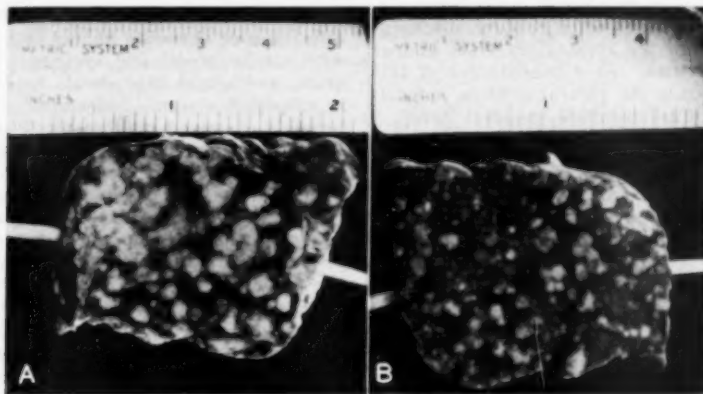


Fig. 2—Gross lesions of lung: (A) cut surface; (B) pleural surface.

diffuse or focal consolidation. The lesions frequently resemble those of miliary tuberculosis, although larger nodules are commonly discerned. Most of these granulomatous processes are moderately firm in consistency, are readily incised, and are not

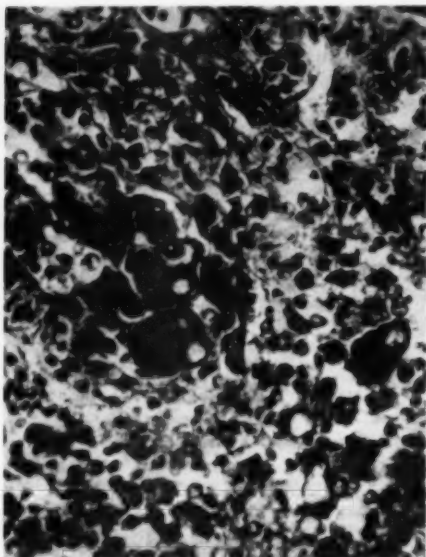


Fig. 3—Histological section of lung. Note B. dermatitis within giant cells. 410 x.

calcified; others are soft with necrotic centers. In the latter type, a coalescence of adjacent lesions may result in the formation of abscesses which often rupture, discharging pus into the respiratory tract and/or pleural cavities. As a consequence of this discharge into the pleural cavities, a focalized or diffuse pleuritis ensues. Hence, a variety of tissues may become infected from the lung, both by direct extension or by metastases via the blood and lymphatic streams.

Blastomycotic infections of the skin were observed in 4 of the patients listed in table 1. Foshay and Madden⁶ describe the cutaneous lesions observed in their study as follows: "The gross autopsy findings were multiple cutaneous and subcutaneous abscesses in the regions previously noted. The lesions appeared to have originated as small papules which soon became pustular,

with surrounding inflammatory edema of the skin, and the formation of numerous superficial miliary abscesses, which apparently coalesced to form the larger ones. These regional areas were well circumscribed, elevated from $\frac{1}{4}$ to 1 in. above the adjacent normal skin. The abscess contents were gray, thick, and mucopurulent." Saunders's case 13, Riser's case 14, and Ramsey and Carter's case 16 revealed similar lesions. The extension of abscesses into subcutaneous tissues provides an avenue for the invasion of the lymphatic and blood streams with consequent metastases.

The histopathology of this affection is that of an infectious granuloma. The characteristic cellular reaction is readily discernible in figure 3. Toward the periphery of the chronic inflammatory nodule, an increase of reticuloendothelial cells and some fibroblastic differentiation are noted. The remainder of the nodule consists of lymphocytes, scattered islands of neutrophils, a few giant cells, and varying degrees of necrosis.

Diagnosis.—Because diagnostic methods based on sufficient experience have not been established for the dog, the following techniques described by Conant *et al.*⁴ for suspected human cases are given: "Material for microscopic examination is collected from cutaneous lesions by scraping bits of tissue or by obtaining swabs of pus from the undermined, heaped border of the lesion. The roof of small abscesses, appearing as tiny white heads around the periphery of the lesion, should be removed and the underlying pus collected. Pus from fluctuant subcutaneous abscesses should be aspirated with sterile needle and syringe. Sputum, urine, and spinal fluid should be examined in suspected systemic infections. The material is examined microscopically by placing a loopful on a slide and gently crushing it to a thin film under a cover glass. If cellular debris interferes with the transmission of light, a loopful of material should be mounted in a drop of 10 per cent potassium hydroxide, cover glass added, and the preparation gently heated over the low flame of a Bunsen burner or alcohol lamp. All preparations should be examined with subdued light from a microscope condenser."

Figure 1 is a photomicrograph of an original smear from the pulmonary exudate

of Ramsey and Carter's case 15. *Blastomyces dermatitidis* appear as single or budding spheres with "double-contoured," refractile walls. Mycelial forms were not observed. The causative organism of coccidioidomycosis is larger than *B. dermatitidis* and does not reproduce by budding, and hence it should be easily differentiated from the latter.

A strongly presumptive diagnosis of blastomycosis can be made on the basis of finding the above described organisms in either smears or tissue sections. The diagnosis can be proved unequivocally only by the isolation and identification of *B. dermatitidis*. Such identification was accomplished in Saunders's and in Ramsey and Carter's cases.

Although the authors have not encountered reports of *B. brasiliensis* (South American blastomycosis) or *C. neoformans* (European blastomycosis) infections in the dog, these organisms should definitely be kept in mind when a systemic fungous infection is encountered in the dog.

Systemic blastomycosis must be distinguished from suppurative pneumonia, tuberculosis, neoplasms, osteomyelitis, pyemia, actinomycosis, and coccidioidomycosis. Cutaneous blastomycosis may simulate epithelioma or granulomata of the skin. To eliminate the above, it is only necessary to demonstrate the budding, thick-walled, yeastlike cells.

Exudate from suspected tissues should be examined microscopically as pointed out previously. The histopathological picture is similar to that of tuberculosis and actinomycosis. However, it is a granuloma with varying degrees of suppuration and necrosis. In the later stages of the lesions, the cell response is characteristically mononuclear, and a few large multinucleated giant cells may be found. The process is readily distinguished from the other granulomata by the presence of *B. dermatitidis*. The organisms may be present in large numbers, as in figure 1.

Skin tests with *Blastomyces* vaccines and extracts have been conducted on man. Unfortunately, advanced cases quite frequently yield negative reactions. A complement-fixation test has been used in human medicine.

Prognosis.—Systemic blastomycosis of the dog invariably has been a fatal disease in the cases reported.

Treatment.—Considering the virulence of this pathogen and the fact that no satisfactory treatment has been evolved, it would be advisable to destroy the patient and judiciously dispose of the carcass.

Benedek³ reports the successful treatment of a human case with penicillin; however, there have been a number of reports of the failure of this antibiotic to favorably influence the course of the disease. Large doses of streptomycin were administered to Saunders's case and Ramsey and Carter's case 16 without any apparent amelioration of the malady. Those interested in treating the disease should consult texts on medical mycology.

Epidemiology and Public Health Considerations.—*Blastomyces dermatitidis* very likely exists in nature, but has never been isolated apart from an animal host. Martin and Smith¹¹ review the speculations of a number of authors in regard to the origin of infections. It seems highly probable that cutaneous infections follow trauma. Ravolgi¹⁴ suggested in 1912 that the disease was contracted by individuals handling animal cadavers, and mentioned incidences of the infection in milkers, hide workers, and stable employees.

Evans⁵ has described the only proved case of direct transmission of North American blastomycosis from man to man. His patient, a physician, was infected through a puncture wound on his finger while performing a necropsy on a case of North American blastomycosis. Another case of North American blastomycosis contracted by a physician doing necropsies and dissections in Chicago is reported by Morris.¹² Benbrook² has informed us of a veterinarian engaged in diagnostic laboratory work who succumbed to the disease.

Although no instances of transmission from dog to man have been reported, there is no reason to believe that such transmission is not possible. This infection should be handled with the utmost caution and individuals who have been closely associated with an infected dog should be put under the observation of a physician. One has only to observe a case of the systemic form to appreciate its malignancy.

SUMMARY

At least 16 cases of *Blastomyces dermatitidis* infection of the dog have been recognized in the United States. It is believed

that probably many cases have passed undiagnosed. For the purpose of facilitating diagnosis, a description of the disease, based upon the salient characteristics of 14 infections, is presented.

Canine blastomycosis is a chronic disease caused by a yeastlike fungus, *B. dermatitidis* and characterized by the formation of granulomatous processes which often suppurate. Lesions are most commonly observed in the lungs and skin, and to a lesser extent in other tissues.

All recorded cases in the dog have terminated fatally. Because of the danger of transmission of the pathogen to man, treatment has not been recommended.

References

- ¹Anthony, C. N.: Canine Blastomycosis: A Case Report. *Jen-Sal J.*, (Nov.-Dec., 1945): 22.
- ²Benbrook, E. A.: Personal communication.
- ³Benedek, T.: Blastomycosis (Gilchrist) (North American Type). The First Case on Record Successfully Treated with Penicillin. *Urol. and Cutan. Rev.*, 53, (1949): 216-219.
- ⁴Conant, N. F., et al.: Manual of Clinical Mycology. W. B. Saunders Co., Philadelphia, 1944.
- ⁵Evans, N. A.: Clinical Report of a Case of Blastomycosis of the Skin from Accidental Inoculation. *J. Am. M. A.*, 40, (1903): 1772-1775.
- ⁶Foshay, L., and Madden, A. G., Jr.: The Dog as the Natural Host for *Blastomyces Dermatitidis*. *Am. J. Trop. Med.*, 22, (1942): 565-569.
- ⁷Lacroix, L. J., Riser, W. H., and Karlson, A. G.: Blastomycosis in the Dog: A Case Report. *North Am. Vet.*, 28, (1947): 603-606.
- ⁸MacLane, C. C.: Cases of Generalized Blastomycosis Including One in the Dog. *J. Infect. Dis.*, 19, (1916): 194-208.
- ⁹Madsen, D. E.: Some Studies of Three Pathogenic Fungi Isolated from Animals. *Cornell Vet.*, 32, (1942): 383-389.
- ¹⁰Martin, D. S., and Smith, D. T.: The Laboratory Diagnosis of Blastomycosis. *J. Lab. Clin. Med.*, 21, (1936): 1289-1296.
- ¹¹Martin, D. S., and Smith, D. T.: Blastomycosis. *Am. Rev. Tuberc.*, 39, (1939): 275-304.
- ¹²Meyer, K. F.: Blastomycosis in the Dog. *Proc. Path. Soc. Philadelphia*, 15, (1912): 10.
- ¹³Morris, R. T.: A Case of Systemic Blastomycosis. *J. Am. M. A.*, 61, (1913): 2043-2044.
- ¹⁴Ravolgi, O.: Uber Blastomykosis. *Arch. Derm. Syph.*, 112, (1912): 847.
- ¹⁵Riser, W. H.: Personal communication.
- ¹⁶Saunders, L.: Cutaneous Blastomycosis in the Dog. *North Am. Vet.*, 29, (1948): 650-652.
- ¹⁷Seibold, H. R.: Systemic Blastomycosis in Dogs. *North Am. Vet.*, 27, (1946): 162-164.

The most common and important way in which cattle diseases are spread from one herd to another is by traffic in cattle. All other means of spread put together are of less importance.

ACTH and Cortisone in Clinical Ophthalmology

The author discusses the reports which have appeared concerning the use of cortisone and ACTH in diseases of the eye.

Recommendations are made as to treatment. The topical use of cortisone appears preferable for treating disease of the conjunctiva, cornea, sclera, or anterior ocular segment. The parenteral use of either ACTH or cortisone is recommended for treating generalized uveitis, choroiditis, and disease of the posterior ocular segment.

ACTH and cortisone produce essentially the same effect when administered parenterally for ocular disease, but ACTH acts more promptly. Parenteral ACTH is usually started at a daily dose of 100 to 120 mg.; if the eosinophil count does not change after two to three days on this dose, it is increased to 180 to 240 mg.; no further increase in dosage is made if the latter dose does not produce a drop in the eosinophils and a favorable therapeutic effect; once a favorable response is obtained, the dose is gradually reduced. Cortisone is given parenterally in doses of 300 mg. the first day, 200 mg. the second day, 100 mg. each of the next seven days, and thereafter abruptly stopped or tapered off gradually.

ACTH has no action when applied topically; cortisone has a direct local action and may be applied in suspension (drops or subconjunctival injection) or topically as an ointment. A special ophthalmic suspension in a buffered phosphate vehicle, with 1:5,000 alkoninium hydrochloride added as the preservative, is completely nonirritating and can be used in the full concentration of 25 mg. per cubic centimeter; the saline suspension (25 mg./cc.) containing 1.5 per cent benzyl alcohol as the preservative is somewhat irritating and must be diluted 1:4 with saline for ophthalmic use. The most convenient method of applying cortisone topically is the use of cortisone ointment; many ophthalmic ointments have been prepared, and it has been found that a concentration of 10 mg. per gram is effective, that cortisone-21-hemisuccinate is only about half as effective as cortisone acetate, and that an aquaphor base gives equally as good if not superior results to the vaseline base.—*Am. J. Ophthalm.*, July, 1951.

NUTRITION

Vitamin E Deficiency in Lambs

Vitamin E deficiency is characterized grossly by locomotor disturbances and general muscular dystrophy.

Nutritional muscular dystrophy in the lamb was produced by using a liquid, purified vitamin E deficient diet. The symptoms of vitamin E deficiency were characterized by low total tocopherol level in blood, disturbance in locomotion, stiffness, paralysis, susceptibility to pneumonia, and sudden death.

Postmortem examination showed Zenker's degeneration of the skeletal and cardiac muscle. The lesions in the heart were invariably in the right ventricle.

Administration of α -tocopherol alleviated the symptoms in three to five days to a great extent.

A complete regeneration of the muscle is no doubt a process of longer duration. Symptoms and degenerative changes of the so-called "stiff lambs" from the field appeared to be identical in every respect with the nutritional muscular dystrophy produced in the lamb on vitamin E deficient diet.—*J. Anim. Sci.*, Nov., 1951.

Feeding and Management Factors Affecting Age at Puberty in Gilts

Most pigs on farms which follow a once-a-year farrowing system are produced by gilts. Such a practice is considered more economical than keeping older, larger sows to farrow year after year.

An experiment was used to study the effects of three variations of feeding and management upon various reproductive phenomena in 48 Chester White and 48 Poland China gilts.

The average age at puberty of gilts in this study was 201 days, with a standard deviation of 13.2 days, while the average weight at puberty was 195 lb., with a standard deviation of 35 lb. Age at puberty was less variable than weight at puberty.

Gilts which were born later in the spring

farrowing season tended to reach puberty at a younger age.

Full-fed gilts tended to reach puberty earlier than limited-fed gilts, and gilts which received the low protein ration were 6 days younger at first heat than those which received the high protein ration.

The average ovulation rate at first heat over all lots was 9.8 eggs per gilt. Full-fed Chester White gilts ovulated 2.9 more eggs at first heat than did limited-fed Chester Whites, whereas full-fed Poland China gilts exceeded the limited-fed Poland Chinas by only 0.7 egg. High protein-fed gilts tended to ovulate more eggs than low protein-fed gilts if on pasture, but fewer eggs if in drylot. — *J. Anim. Sci.*, Nov., 1951: 841-865.

Thyrotropic Hormone Deficiency in Homozygous Dwarf Beef Cattle

Physiological studies have been undertaken to determine why hereditarily conditioned beef cattle dwarfs fail to grow. Results were obtained which indicate the pituitary glands are deficient in thyrotropic hormone. This deficiency might largely account for the dwarfism. Additional data indicate that the growth hormone in the dwarf pituitary as well as gonad stimulating hormone are present.—*J. Anim. Sci.*, Nov., 1951.

Bracken Poisoning in the Horse

There seems little doubt that the condition known as "bracken staggers" in the horse is in reality a nutritional disease, presenting all the features of thiamine deficiency and responding to treatment with this vitamin.

Typical bracken staggers in the horse has been reproduced experimentally by the feeding of a bracken-hay diet. Clinical records and hematological and biochemical observations made during the course of the work are recorded and discussed.

This condition in the horse exemplifies the symptoms which are characteristic of avitaminosis B₁. Clinically and patholog-

ically, cardiac involvement is prominent. The blood thiamine level is much depressed, and the pyruvic acid concentration is markedly increased, both being well-recognized biochemical lesions in thiamine deficiency.

Thiamine therapy, if commenced before the condition is too far advanced, brings about complete recovery of the animal.—*Brit. Vet. J., Oct., 1951.*

Some Observations on Vitamin A Requirements of Pigs

It has long been known that animals accumulate large stores of vitamin A and are able to make use of them in the absence of the vitamin in the ration. Experience in England in wartime with human volunteers brought out the surprising fact that normal adults take something like eighteen months to become seriously depleted of vitamin A.

In an attempt to produce naturally suckled young pigs with very low reserves of vitamin A, a sow that had already produced five litters on a normal diet was deprived of vitamin A for nearly two years, during which time she produced a further four litters apparently normal at birth, but reared successfully only the first three. Three gilts from her first litter on the vitamin A deficient ration were kept on the same ration, and produced litters of their own. The degree of vitamin A depletion of the animals was studied by analysis of blood, colostrum, milk, and livers.

Thus, the attempt to produce naturally suckled young pigs devoid of vitamin A reserves was not successful.—*Vet. Rec., Oct. 27, 1951.*

Riboflavin Requirements of Growing Swine

Although riboflavin is important in the normal nutrition of pigs, it has received relatively minor attention.

Experiments were planned to determine the riboflavin requirements of growing pigs on practical rations under natural environmental conditions.

The results of these experiments show that 0.83 mg. of riboflavin per pound of ration in drylots is adequate for growing swine. This amount is supplied from practical rations but probably not in any great

excess. An amount of 0.55 mg. of riboflavin per pound of feed was inadequate for growth and caused symptoms of riboflavin deficiency.

There was an indication that riboflavin is associated with utilization of feed during the first ten weeks of growth.—*J. Anim. Sci., Nov., 1951.*

Effect of Stilbestrol on Growing-Fattening Swine

Some effects of the use of stilbestrol on growing-fattening swine are presented in this paper.

Stilbestrol, implanted as a pellet subcutaneously, did not consistently stimulate gains of growing-fattening pigs as with beef cattle and lambs.

The nontreated controls required from 5.2 to 13.7 per cent more feed per 100 lb. of gain than did the treated pigs.

Treatment of gilts with the levels used is not to be recommended because of prolapse of the uterus as a result of the stilbestrol.—*J. Anim. Sci., Nov., 1951.*

Adding an APF supplement and crystalline aureomycin to the diet of young calves resulted in better gains and a lower incidence of scours, according to a report by Loosli and Wallace of Cornell University (*Proc. Soc. Exptl. Biol. and Med., Nov., 1950*).

Antibiotics in Swine Erysipelas. — In treating acute swine erysipelas, the author has used procaine penicillin in oil, in conjunction with erysipelas serum, and feels that much better results are obtained than from serum alone.—*Iowa Vet., Nov.-Dec., 1951: 15-22.*

Streptomycin Resistance in Turkeys. — The use of streptomycin as a growth-promoting supplement in turkey poult results in the appearance within three days of streptomycin-resistant coliform bacteria. In 66 per cent of the drug-fast strains, resistance to the antibiotic rose to 60,000 μ g. per millileter. The potential hazard to veterinary and public health stemming from the indiscriminate use of antibiotic poultry feed supplements is discussed.—*Am. J. Pub. Health, Nov., 1951.*

EDITORIAL

Leptospirosis in Cattle

In a paper presented to the United States Livestock Sanitary Association (Kansas City, Nov. 14-16, 1951), Dr. Charles J. York, of the Virus Research Institute of the New York State Veterinary College, Cornell University, reported the results of the recent survey for leptospirosis in cattle of New York State, which revealed that 12.8 per cent of the dairy cattle tested have had leptospirosis (Proc. U.S.L.S.A., 1951, in press).

Although other areas have not been sampled in a similar manner, this disease is known to be widely distributed throughout the United States. In commenting on the effects produced by leptospirosis when introduced by a carrier into a susceptible herd, Dr. York noted that 50 to 70 per cent of the animals became infected. Of these, 5 per cent usually died, although the mortality sometimes reached 25 per cent in young animals; 5 to 10 per cent showed severe signs of illness, 20 to 40 per cent had milder signs, i. e., primarily high fever and a drop in milk production, while the remaining 20 to 30 per cent had inapparent infection. Of the number infected, regardless of the form of illness, the abortion rate ranged as high as 25 per cent. Obviously, the economic loss in a herd could be disastrous.

FACTUAL INFORMATION ESSENTIAL

Before logical control procedures can be planned for any disease, research to provide factual information is essential. Research laboratories must isolate the etiological agent, characterize its properties, and reproduce the disease under experimental conditions. Information about how the infectious agent is maintained and is spread must be known and full knowledge of pathogenesis obtained. With these facts, it then should be possible to formulate a more detailed research program that should lead to good control if not complete eradication of the disease.

With this increased awareness that leptospirosis is a problem of only partially determined significance, it seems important to

spotlight pertinent facts that are known at present and to indicate lines of further research that should be helpful in formulating adequate control measures.

Recognition that leptospirosis occurred in cattle in the United States was first given by Jungherr in 1944 (*J.A.V.M.A.*, 105, 1944: 276). Actual isolation of *Leptospira* and reproduction of the disease under experimental conditions was reported by Baker and Little in 1948 (*J. Exptl. Med.*, 88, 1948: 245). They also determined that infection was first septicemic but later localized in the kidneys as a chronic interstitial focal nephritis. Animals after recovery became carriers and shed *Leptospira* in their urine. Since infection occurred through inhalation, the theory was advanced that urine from a carrier, in falling onto a concrete floor or other hard surface, caused a spray of droplets some of which in turn could be inhaled by nearby animals. This mode of infection explains how a single animal could initiate the disease in a susceptible herd.

Recently, Gochenour (*Proc. Soc. Exptl. Biol. and Med.*, 74, 1950: 199) reported that the American strain of bovine leptospirosis is antigenically similar to *Leptospira pomona*. *Leptospira pomona* has been reported to occur in cattle in Australia and to be transmissible to man; in Europe it occurs in pigs and also is transmissible to man, producing the condition known as swineherd's disease.* This finding indicates that cattle in the United States may be a reservoir of leptospirosis for man. Based on serological evidence, reports of leptospirosis in man have already been made. It is hoped, however, that a careful approach to this phase of the problem will be made and true facts adduced on the hypothesis of whether cattle actually are reservoirs of infection for man or whether conditions are not such that human beings themselves maintain and spread the infection, perhaps even acting in part as the reservoir and source of infection for cattle.

*See Current Literature Section (p. 103) for abstract of article on swineherd's disease in Texas.

INFORMATION URGENTLY NEEDED FOR CONTROL PURPOSES

It seems natural, therefore, that information for control purposes is urgently needed for:

1) A reliable serological test for recovered human beings and animals. Proper application of a serological test should yield important data bearing on incidence and epidemiology. Furthermore, it will be an essential feature in revealing infected individuals.

2) A means of eliminating carriers, either by use of a chemotherapeutic, antibiotic, or other agent.

3) Protection of susceptible animals that will undergo exposure, possibly by vaccination.

Reports by York (*Am. J. Vet. Res.*, to be published) and Gochenour (*Federation Proc.* 10, March, 1951: 424) indicate that a reliable serological test is now possible. York also reports that in preliminary tests certain antibiotics, although expensive, offer promise as a means of eliminating carriers and that tests thus far indicate that an inactivated leptospiral vaccine will immunize.

National Science Foundation Research Grants

The National Science Foundation Act which was passed by Congress in 1950 authorized the establishment of the National Science Foundation for the support of basic research in the mathematical, physical, medical, biological, and engineering sciences by making grants for such research to educational, industrial, governmental, or other institutions or individuals. The Foundation recently announced the issuance of a tentative guide for the use of prospective grantees who may wish to apply for grants in preparing their proposals or requests for aid.

During the current fiscal year, the Foundation has earmarked about \$1,500,000 for support of basic scientific research in the fields mentioned, and is now in a position to evaluate proposals for basic research grants and to make grants within the limits of the available funds. In reviewing proposals, the Foundation will emphasize the scientific merit of the suggested research, including the competence of the scientist under whom the study will be made. Ordinarily,

grants will be awarded to institutions for research by specified individuals.

It is anticipated that proposals will usually be initiated by the scientist interested in carrying out the work and they may be presented formally, or a project may be submitted informally, by letter or in person, for preliminary review and discussion before filing an actual request for a grant.

The Foundation does not recommend any specific form for proposals at this time. It suggests that handling of them will be facilitated, however, if they are submitted in 15 copies on letter-size paper.

Copies of the guide referred to above, which contain complete information about the grants for scientific research and the preparation of proposals, have been distributed to universities, colleges, laboratories, and other organizations which are qualified to conduct competent investigations in the science fields mentioned. Copies may be obtained from, or proposals can be submitted to, the National Science Foundation, Washington 25, D. C.

1951 "Proceedings Book" Ready for Distribution

AVMA members will soon receive, without any charge, the 1951 "Proceedings Book." This volume of approximately 500 pages is a complete record of the Eighty-Eighth Annual Meeting of the AVMA held in Milwaukee, Wis., Aug. 20-23, 1951. It is expected to get the hearty reception from the members which the 1950 "Proceedings Book" received. This "service" to the members is financed entirely from general Association income.

The general sessions and the 12 scientific sectional meetings of the convention, plus the Association's committee reports and the business meeting of the House of Representatives, are all included in this volume. There are also numerous pictures of convention participants, the television demonstrations, women's activities, and Association officers. The editorial staff has tried to make the 1951 volume "bigger and better" in every way than the 1950 "Proceedings Book."

The complete record of the 1951 annual meeting is available to scientific institutions and libraries for the cost price of \$2.50. Others may purchase the book for \$5.00 each. (See adv. page 36.)

CURRENT LITERATURE

ABSTRACTS

Effect of Sprinkling Dairy Cattle

Previous studies indicated that dairy cows spend much of the daytime during the summer in the shade in comparative inactivity and that body temperatures and respiration rates increase progressively throughout the day.

Two groups of 16 lactating cows (8 Holstein-Friesians and 8 Jerseys) each were used in a double-reversal experiment to study the effect of cooling by sprinkling on respiration rates, body temperatures, and grazing performances.

Although sprinkling was effective in cooling the cows as evidenced by decreasing respiration rates and body temperature and increasing grazing rates, there appeared to be no relationship between the amount of milk produced and treatment.—[G. D. Miller, J. B. Frye, Jr., B. J. Burch, Jr., P. J. Henderson, and L. L. Rusoff: *The Effect of Sprinkling on the Respiration Rate, Body Temperature, Grazing Performance and Milk Production of Dairy Cattle*. *J. Anim. Sci.*, 10, (1951): 961-967.]

Actinobacillus Lignieresii Infection

The action of potassium iodide, mercuric iodide, penicillin, and four sulfonamides on seven cultures of *Actinobacillus lignieresii* was studied *in vitro*.

Potassium iodide, but not mercuric iodide, was practically devoid of lethal action. The cultures were only slightly sensitive to penicillin. They were very sensitive to the action of the sulfonamides, particularly sulfapyridine, sulfamezathine, and sulfathiazole. It is considered that these sulfonamides are worthy of trial in the treatment of *A. lignieresii* infection.—[H. Williams Smith: *A Laboratory Consideration of the Treatment of Actinobacillus Lignieresii Infection*. *Vet. Rec.*, 63, (1951): 674-675.]

Immunization of Sheep to Listeriosis

An attempt was made to immunize sheep during the course of an outbreak of listeriosis by giving approximately half of the flock of 540 sheep two subcutaneous injections of living *Listeria monocytogenes* cultures. Only 1 case of listeriosis occurred in the vaccinated sheep during one week following the first dose of culture vaccine. After the second dose of culture vaccine, more sheep developed the disease among the vaccinated group than among the nonvaccinated control group.

The existence of asymptomatic cases of listeriosis was suggested by some sheep with temporary elevations of body temperature and leukocytosis of neutrophils.

A sheep which had recovered from mild listeriosis

in the early part of the outbreak provided whole blood which seemed to bring about recovery in 3 cases of listeriosis. Another sheep which had had a number of previous exposures of living *L. monocytogenes* provided serum which failed to halt fatal listeriosis in 3 of 4 sick sheep. Penicillin seemed to prolong life in 2 cases of natural listeriosis that finally had a fatal outcome.

Observations made during the course of the outbreak suggest the existence of some etiologic factor in addition to *L. monocytogenes* in the natural disease of sheep.—[C. Olson, R. H. Cook, and V. Bagdonas: *An Attempt to Immunize Sheep During an Outbreak of Listeriosis*. *Am. J. Vet. Res.*, 12, (Oct., 1951): 306-313.]

Swineherd's Disease Due to Leptospira Pomona

This is believed to be the first report of a case of swineherd's disease (aseptic meningitis) due to *Leptospira pomona* occurring in Texas.

Concerning an outbreak, recently reported in Alabama, Dr. Morris Schaeffer, Communicable Disease Center, Montgomery, Ala., states in part as follows:

In this country we have been accustomed to thinking of leptospirosis only in the form of Weil's disease, producing severe liver damage with jaundice and causing a high mortality. The causative agent of this disease entity is usually ascribed to *Leptospira icterohaemorrhagiae*, but it has been recognized for some time that another leptospiral agent, designated as *Leptospira canicola*, which usually affects dogs, can also affect man and produce a milder infection with or without jaundice.

Current studies indicate that other leptospires, particularly *L. pomona*, associated in nature principally with hogs and cattle, quite frequently produce a mild systemic infection with aseptic meningitis as the predominant syndrome. For many years such a disease was found to be associated especially with pig tenders and thus the name swineherd's disease. The etiology of this disease has been thought to be due to a virus, but the evidence is becoming stronger that it is probably due to leptospiral infection.

In the outbreak in Alabama, there was definite association of persons who swam in a creek which was contaminated by hogs dying of, presumably, leptospiral infection with this disease. The majority of persons who were affected had a significantly high titer against *L. pomona*.

Referring to the case reported from Texas, the authors state in part as follows:

Several serum specimens were sent to the

Army Medical Center, Washington, D. C. They were found positive for leptospirosis at diagnostic titers by both complement-fixation and agglutination tests. The specific organism was *L. pomona*.

As more agglutination tests for *L. pomona* are done in cases of iridocyclitis, aseptic meningitis, and influenza-like diseases, this pathogen will probably be found to be more frequent and widespread than heretofore believed.—[J. H. Coffey, I. Dravin, and W. C. Dine: *Swineherd's Disease (Aseptic Meningitis) Due to Leptospira Pomona*. *J. Am. M. A.*, 147, (1951): 949-950.]

Drug-Resistant Tubercle Bacilli

A group of tuberculous patients were treated with dihydrostreptomycin and para-aminosalicylic acid (PASA) on three days of each week for three to eight months. Specimens from 29 of these patients on one or more occasions produced tubercle bacilli by culture after three or more months of treatment, and 8 of these patients had strains of tubercle bacilli resistant to 10 µg. or more of streptomycin per milliliter of culture medium. However, streptomycin-sensitive tubercle bacilli subsequently were recovered from 5 of these 8 patients. Only 2 patients were found to have PASA-resistant tubercle bacilli, and in both cases subsequent culture of specimens produced organisms that were PASA-sensitive.—[Alfred G. Karlson, David T. Carr, Gerald N. Hofmann, and Karl H. Pfuetze: *The Frequency of Drug-Resistant Tubercle Bacilli Following Administration of Dihydrostreptomycin and Para-Aminosalicylic Acid Three Days per Week*. *Proc. Staff Meetings Mayo Clinic*, 26, (1951): 437-440.]

Influence of ACTH and Cortisone on Resistance to Infection

Heavy overdosage with cortisone and highly toxic dose levels of ACTH were found to predispose rats to pulmonary abscesses and eventually to general septicemia with abscesses in other organs due to normally present, usually nonpathogenic, organisms. This presumably results from lowered resistance caused by the drugs. How these drugs diminish resistance is not yet clearly understood, but their inhibition of granuloma formation, destructive action of lymphatics, and their general catabolic effects have been suspected.

Since the somatotrophic hormone (STH) has been found to be antagonistic to ACTH, an attempt was made to see if STH could raise resistance to infections produced by normally nonpathogenic microorganisms present in the body. Eight female rats were injected with 10 mg. of cortisone twice daily for twelve days. Another 9 rats received the same cortisone regimen, together with 2 mg. of STH three times daily for twelve days. Of the 8 rats that received cortisone alone, 5 died from infection and 1 of the survivors showed multiple abscesses on autopsy. All the rats lost a great deal of weight. The animals that received both

cortisone and STH nearly doubled their weight, and no deaths or abscesses occurred. The experiment was repeated, with hormone therapy continuing for seventeen days. All animals on cortisone alone had died of abscesses by the seventeenth day, while those on combined STH and cortisone were alive and had doubled their weight.—[H. Selye: *The Influence of STH, ACTH and Cortisone upon Resistance to Infection*. *Canad. M. A. J.*, 64, (1951): 489. *From The Cortisone Investigator*, Merck, (Nov. 1, 1951): 18.]

Hematology of Suckling Foals

The following over-all mean blood values with their standard errors are recorded from a series of 217 individual examinations of 28 Thoroughbred sucklings: erythrocytes per cubic millimeter, 11.77 ± 0.096 million; hemoglobin, grams per 100 ml., 12.2 ± 0.073 ; packed volume of erythrocytes, 36.54 ± 0.22 per cent; mean corpuscular volume, 31.2 ± 0.14 cu; mean corpuscular hemoglobin concentration, 33.45 ± 0.113 per cent; and leukocytes per cubic millimeter, 13.12 ± 0.153 thousand. The differential leukocyte counts had the following mean percentages and standard errors: neutrophils, 53.26 ± 0.742 ; lymphocytes, 42.16 ± 0.742 ; monocytes, 2.37 ± 0.119 ; eosinophils, 2.1 ± 0.118 ; and basophils, 0.07 ± 0.027 .—[A. C. Todd, W. R. McGee, Z. N. Wyant, and K. P. Hollingsworth: *Studies on the Hematology of the Thoroughbred Horse. V. Sucklings*. *Am. J. Vet. Res.*, 12, (Oct., 1951): 364-367.]

FOREIGN ABSTRACTS

The Bovine Blood Picture

The blood pictures of 50 healthy, 4- to 12-year-old cows, of 40 cows and heifers with traumatic reticulitis, of 7 cows with peritonitis and pericarditis, and of 8 cows with various disturbances of digestion and purulent processes are described.

In cases of traumatic reticulitis, the blood picture permits the differentiation of localized inflammation from extending peritonitis, especially in initial cases.

The main practical purpose of the blood picture is to find out whether peritonitis is present and to decide whether an operation can be performed.

—[E. Moser: *The Blood Picture in Healthy Cattle and in Cattle Suffering from Traumatic Reticulitis*. *Schweiz. Arch. f. Tierheilk.*, 93, (1951): 693.]

—F.K.

Antihistamine Treatment for Chronic Canine Nephritis

A 3-year-old Dachshund had been suffering for six weeks from an elevated temperature of unknown origin. The temperature had at times risen to 40.5 C. without causing marked emaciation or weakness, but the dog did show some malaise and had a rough coat. Treatment with sulfona-

mide drugs and penicillin had no effect on lowering the temperature. Examination of the dog showed only some conjunctivitis, and albumin in the urine. Urinary sediment showed a few granular casts.

Because recent human medical literature described a number of cases of allergic nephritis, it was decided to try antihistamines on this case. One hundred milligrams of anahist (Ciba), divided into three doses, was given daily. The temperature dropped after the first day of treatment; the urinary albumin was decreased the following day. After two days, treatment was discontinued, whereupon the animal had a relapse. Treatment with anahistin was resumed and continued for a week. On the fourth day, the urine was normal, and the dog appeared fully recovered at the end of the week.

The author suggests that in certain forms of nephritis of allergic origin, antihistamine treatment may be used to good effect. Differentiation between nephritis of infectious origin and allergic nephritis would help in the treatment.—[F. G. Sulman: *Chronic Nephritis in a Dog and Its Treatment with an Antihistamin Drug. Refuah Vet., Oct., 1950.*]—M.E.

Swamp Fever

The question of the importance of the sublingual hemorrhages in clinical diagnosis of swamp fever has been discussed.

The symptoms of the typical sublingual hemorrhages in swamp fever are less related to the clinical state of the animal than to the infection.

No correlation has been observed between the appearance of those sublingual hemorrhages and other diseases such as strangles, contagious pleuropneumonia, influenza, and other respiratory disorders.

The number of the hemorrhages is very important for the clinical diagnosis.—[W. Steck: *Further Studies About Swamp Fever. Schweiz. Arch. f. Tierheilk., 93, (1951): 665.*]—F.K.

New Agent for Treating Tuberculosis

The introduction of sulfones in the treatment of leprosy and tuberculosis is one of the main contributions of science. A new product, α -amion butanoic- γ -methyl sulfone, 191RB, has been shown to have practically no toxicity. Infected animals with Koch's bacillus showed a mortality of only 28 per cent. Thus, it is believed that 191RB inhibits the evolution of tuberculosis in guinea pigs.—[Andre Ramonoulou: *New Agent for Treating Tuberculosis. Pub. Med., 21, (1951): 21.*]—G.T.E.

Pentothal Narcosis in Cattle

A 1 per cent solution of pentothal sodium was administered intravenously to 32 cattle at the rate of 0.9 to 2.5 cc. per kilogram. The injection was

prolonged for five to eight minutes to avoid respiratory failure. There was no period of excitement. It is recommended that injection be stopped when the swallowing reflex ceases. A weak corneal reflex may persist throughout the period of narcosis. Rumen contractions continued at a reduced rate of three to four every five minutes, and atony did not occur. The duration of narcosis varied from ten minutes, to one hour and fifty minutes, depending on the dose and the condition of the animal. Pentothal narcosis was prolonged in the dog by combination intramuscular and intravenous injection.—[G. P. Markaryan: *Pentothal Narcosis in Veterinary Practice. Veterinariya, 28, (1951): 48-49.*]—R.E.H.

Mixed Superfetation in a Mare

A case was described in which a mare presented 2 offspring, a filly and a mule, both being normal in appearance. The approximate weight of the filly was 35 kg. and the mule 25 kg.—[J. Cardon: *A Case of Mixed Superfetation in a Mare. Veterinaria, 15, (1951): 559.*]—G.T.E.

Urethritis Caused by a Virus

Some viruses or correlate agents can cause urethritis; these viral particles may co-exist with the gonococci and after penicillin has destroyed the latter, urethritis develops and has been called post-penicillin urethritis. Aureomycin is the best treatment (2 Gm. a day for 3 days) yielding 36 recoveries and 17 improvements out of 67 cases where interference due to this virus has been suspected.—[Pierre Durel: *Urethritis Caused by a Virus. Pub. Med., 21, (1951): 3.*]—G.T.E.

Vibrio Fetus Infection in Cattle

As a result of their investigations, the authors feel justified that enzoötic infertility, as known of old in the Netherlands, is caused by *Vibrio fetus*. Infection is transmitted from the male to the female by coitus or by artificial insemination. Methods to detect vibrio infection are shown in the text. The presence of *Vibrio fetus* in the prepuce offers, at least in many cases, a possibility for therapy.—[J. J. Terpstra and W. A. Eisma: *Vibrio Fetus Infection in Cattle and Enzoötic Infertility. Tijdschr. voor Diergeneesk., 76, (1951): 433-447.*]—L.V.E.

Immunity to Spirochetosis

The authors report that immunity against fowl spirochetosis can be detected in embryos developed in eggs laid only two weeks after the vaccination of the hens. Of the chicks hatched from eggs laid during the first week after vaccination, 80 per cent were sensitive to the inoculation of *Spirochaeta gallinarum*; on the other hand, 80 per cent of the chicks hatched from eggs laid from ten to sixteen days after vaccination were

resistant to the infection. Chicks from eggs of vaccinated hens showed absolute immunity to the disease during the first two weeks of age, when it suddenly decreased, disappearing completely at the age of 20 days.—[P. Nobrega and A. S. Reis: *The Immunity of Chicks and Chick Embryos From Hens Vaccinated Against Fowl Spirochetosis. Arquivos do Inst. Biol. (Brazil)*, 16, (1945): 111-114.]—L.V.E.

The Diagnosis of Avian Spirochetosis in Dead Birds

It appears that only in 85 per cent of the chickens dead from experimental spirochetosis is it possible to find spirochetes in the heart blood by microscopic examination (dark field illumination). At the autopsy table, one is sometimes confronted with certain cases in which the spleen and liver are similar to those usually found in spirochetosis, the blood examination being nevertheless negative as to the presence of spirochetes. The lesions, though common in cases of spirochetosis can not be held as a specific for that disease. The authors present a diagnostic method which can be applied in such cases. The method is based on the detection of protecting antibodies in the spleen of the dead animals. The authors succeeded in establishing the diagnosis of spirochetosis in 86 per cent of the dead birds in which the finding of lesions commonly observed in that disease were not paralleled by the demonstration of spirochetes in the heart blood.—[P. Nobrega and A. S. Reis: *The Diagnosis of Avian Spirochetosis in Dead Birds. Arquivos do Inst. Biol. (Brazil)*, 18, (1947): 91-96.]—L.V.E.

BOOKS AND REPORTS

Untoward Reactions of Cortisone and ACTH

This volume includes 96 references to medical literature and separates out and compiles the untoward reactions that have been reported following the use of cortisone and ACTH. Most of the reports are from human patients, some are from experimental laboratory animals.

The essence of the book is described in part in the following words: "In the selection of therapeutic agents, the physician must pay increasing attention to the undesired or unexpected reactions that may occur during the therapy of any disorder and in no instance is this statement more true than those untoward reactions resulting from the use of cortisone and ACTH, two of the most potent drugs available today. Since these agents are relatively new and periods of observation of necessity comparatively short, our knowledge of the reactions of these preparations is quite limited."

The untoward reactions are described in a good, terse, readable fashion with liberal use of direct quotations from the references.—[*Untoward Reactions of Cortisone and ACTH*. By Vincent J. Derbes and Thomas E. Weiss (ed. by R. L. Pullen).

Leather. 77 pages. Charles C. Thomas, Springfield, Ill. 1951. Price \$2.25.]

Beef Cattle Husbandry

Beef cattle breeders, feeders, and animal husbandry students will find a wealth of practical and scientific information in this interesting and readable book. The text includes discussions on history and development of the industry, types and breeds, breeding, feeding, judging, management practices on the farm and range, selection, fitting, showing, and marketing. In the discussion on disease prevention and parasite control, herd health is given serious consideration in a timely and up-to-date manner. References are amply cited, and the author gratefully acknowledges the assistance received from several eminent authorities.

The book contains numerous good pictures, illustrated drawings and charts. It is well edited, printed on fine quality paper, and attractively bound. It will serve very well as a scientific textbook and as a useful reference work for ranchers, farmers, and veterinarians engaged in mixed practice.—[*Beef Cattle Husbandry*: By M. E. Ensminger. *The Interstate Printers and Publishers, Danville, Ill.* 1951. Price not given.]—G. W. JENSEN.

The Cow Owner's Handbook

This book is designed, as the title indicates, as an educational guide particularly for owners of 1, 2, or 3 cows. It answers questions on the care, feeding, milking, housing, and management of cows and includes emergency treatments in regard to "what to do" and "what not to do," in calving and raising a calf. It is written in simple layman's language.—[*The Cow Owner's Handbook*. By E. T. Baker, D.V.M. Paper. 213 pages. Prentice-Hall, Inc., New York, N. Y. 1951. Price \$3.95.]

Veterinary Jurisprudence

The previous editions of the book "Veterinary Jurisprudence" by Eugen Frohner have been used as an aid in many legal cases involving veterinary practitioners.

To the new revised tenth edition, some special chapters have been added, particularly about swamp fever and numerous legal opinions in small animal cases that died or became gravely ill after the administration of some sulfonamide drug.

The book contains many logical conclusions based upon the practical experience and scientific knowledge of diseases of various species of animals. Even though the discussions of the legal cases have been based on the European and especially German laws, the text may serve as a good reference book for practitioners of any country.—[*Lehrbuch der Gerichtlichen Tierheilkunde*: By Eugen Frohner. 10th ed. 356 pages. K. Neumann-Kleinpaul and J. Dobberstein, Berlin, Richard Schoetz. 1951. Price not given.]—F.K.

THE NEWS

Eighty-Ninth Annual Meeting Atlantic City – June 23-26, 1952

Post-Convention Tours of New England States and Bermuda Being Arranged

Because of the popularity of previous AVMA convention tours, plans have been made for special tours again this year as a service to those attending the Atlantic City meeting.* These trips, participation in which is voluntary, include no provisions for any of the time spent at the convention. This means that hotel reservations for the stay in Atlantic City must be made independently by tour party members

*AVMA headquarters approves the preliminary plans for these tours and offers them solely in the interest of helping registrants get maximum enjoyment out of their trip to the annual convention. The AVMA receives no remuneration or "kick-back" from the travel agency (Happiness Tours of Chicago) which handles the tour arrangements.

as well as by all others attending the meeting. A form for this purpose is provided on advertising page 50 of this issue.

One of the tours, starting immediately after the closing session of the convention, covers New York City and Bermuda. Another and more extensive itinerary starts and ends in Chicago and takes in some of the most scenic places of the New England States, with the added attraction of a stop in New York City for three nights at the Waldorf-Astoria, plus planned entertainment that will give a many-sided view of the city.

Early in the spring, members in most states will receive folders prepared by Happiness

Plenty of sunshine, invigorating air with a salty tang, and spacious white-sand beaches are some of the reasons for Atlantic City's popularity for conventions and vacations.



Tours describing the trips in detail. It is estimated that the Bermuda tour, taxes included, will cost \$191.25 per person by boat, \$211.85 by air, \$184.38 by combination one way boat, one way air. A final estimate of the cost of the New England tour is not yet available, but it is expected to be about \$300.00 per person, all taxes and usual expenses included.

Bermuda

This itinerary starts Thursday evening, June 26, in New York City and terminates there Friday, July 4. The amount of time actually spent in Bermuda will depend upon whether air or boat transportation is used. Accommodations will be provided in New York at the Waldorf-Astoria for the nights of June 26 and 27, with both air and steamship travelers departing on Saturday, June 28. The Castle Harbour Hotel will house the tour group while in Bermuda. There will be planned sightseeing trips that will include the major points of interest and ample free time for swimming, deep-sea fishing, cycling, golfing, or just relaxing in the luxurious surroundings.

New York City-New England

This itinerary starts in Chicago on Saturday afternoon, June 21, Pullman accommodations being provided to Atlantic City for arrival Sunday morning—in time to register for the convention in advance of the Monday morning crowd. Immediately after the convention closes (afternoon of June 26), the tour party will board a train for New York City, where rooms will be ready at the Waldorf-Astoria. Dinner at the Copa Cabana, sightseeing, opportunities for visiting radio and television stations, and tickets for a Broadway musical hit will be included.

Sunday, June 29, the group will leave New York for a tour of the following places that will terminate in Chicago at 12:30 p.m., Saturday, July 5:

Boston and vicinity, including Salem, Marblehead Neck, Brookline, Cambridge, Harvard University, Lexington, and Concord.

Portland (Maine) and vicinity, by motor from Boston, traveling along New England coast through Gloucester, Portsmouth, Ogunquit, Kennebunk, and Old Orchard Beach.

Crawford Notch, in the White Mountains of New Hampshire, reputed to be one of the most scenic trips in New England, including Summit of Mount Washington, Old Man of the Mountains, Echo Lake, Bretton Woods, and Franconia Notch.

Whitefield, N. H., and Springfield, Mass., also are on the route of travel. Most of the short daytime sightseeing trips will be by bus. Excellent hotels have been selected for overnight stops, and Pullman accommodations will be provided for all overnight travel.

AVMA Represented by Dr. Coffee at Agricultural County Agents Meeting

In response to an invitation for a representative of the AVMA to meet with the Animal Industry Committee of the National Association of County Agricultural Agents, of which Mr. Art Bralley of Amarillo, Texas, is chairman, Dr. W. M. Coffee, immediate past-president of the Association, met with this committee in Memphis, Tenn., on Oct. 27, 1951. Dr. Coffee reports that he was impressed with the friendly coöperation manifested by the committee of the N.A.C.A.A. He also reported that there was lively interest and lengthy discussion of brucellosis control programs, in which he participated. Dr. Coffee was also asked to discuss recent developments in the field of hog cholera immunization. He explained the advantages and disadvantages of each of the methods with a special discussion of the newer vaccines which have been placed on the market.

An excerpt from the report of the Animal Industry Committee of the N.A.C.A.A. follows:

The total number of casualties suffered by U. S. forces in the undeclared war or policing actions in Korea should be sufficient reminder to all that we are living in a hostile world. If Russia should attack our continent by either atomic bombs or biological warfare, county agents will be ready to do their share as regards civilian defense. The American Veterinary Medical Association has done some very good work in this field and their membership is ready to take a leading part in the event bacterial warfare is directed against animals as a means of reducing our food supply. . . . [Since] county agents enjoy a position of confidence from the livestock producers we would be called on for educational but not policing assistance. Of course we'll be ready.

This committee appreciates the fine coöperation which we have received from Dr. W. M. Coffee, past-president of the AVMA and a member of their Public Relations Committee, and their entire membership. They have worked with us each year and have contributed much to the end that our animal industry may be better served and for the mutual benefit of both organizations.

Second International Congress on Animal Reproduction and Artificial Insemination

The Second International Congress of Physiology and Pathology of Animal Reproduction and of Artificial Insemination will be held at the Royal Veterinary and Agricultural College in Copenhagen, Denmark, on July 7-11, 1952. The program will comprise lectures and discussions on the following subjects: physiology of reproduction, pathology of reproduction, and artificial insemination of domestic animals. The official languages of the Congress are English,

French, and German, and the last day for acceptance of papers for the sectional meetings is April 1, 1952.

Further information may be obtained by writing to Prof. Ed. Sorensen, the Royal Veterinary and Agricultural College, Bülowsvej 13, Copenhagen V, Denmark.

Those planning to attend this Congress may be interested in the Sixth International Congress of Animal Husbandry which will be held in Copenhagen July 9-14, 1952.

South American Auxiliaries Are Growing

During the First Pan American Veterinary Congress, held in Lima, Peru, Oct. 20-28, 1951, as part of the celebration of the four hundredth anniversary of San Marcos University, women veterinarians and wives of veterinarians came together from North, Central, and South America. The program for the women was in conjunction with that for veterinarians but was arranged on an independent schedule. Mrs. José Santivanez, wife of Dean Santivanez of San Marcos University, and general chairman of the Congress, served the group as general hostess. Mrs. Juan Figueroa, wife of the general secretary of the Congress, was secretary for the women's program.

In advance of the Congress, some of the women of Peru, together with Mrs. Figueroa, Dr. Virginia Buff D'Apice, of Brazil, and myself, had planned to have an organization meeting. The women were greatly interested in having a national auxiliary and becoming a part of the international organization.

The entire week was filled with sightseeing, shopping, cocktail parties, and luncheons. The women joined the men for a luncheon at Pachamanca where food typical of Lima was served. During the fiesta at the Higuera hacienda, entertainment was furnished by the three types of Peruvian Indians. They came from the desert, mountains, and jungles, dressed in ornate costumes elaborately embroidered in jewels and silver and gold ornaments. On a trip outside of Lima, the women visited a deserted Indian city which must have been the location of a large pre-Inca town.

Teas and cocktails were arranged in the spacious lounges of the Bolivar Hotel and the Country Club of Lima. The women's activities closed with an elaborate luncheon served in the club house located on the beach at Callao. They were the guests of the newly organized Peruvian Women's Auxiliary. It was here that the women of Latin America proved to be the fullest their enthusiasm, their interests, and their willingness to cooperate in every possible way to strengthen the bonds of international friendship.

At the close of the Congress, the women joined the men at a beautifully appointed banquet at the Lima Country Club. A spirit of friendliness and good will existed throughout

the entire Congress and every possible courtesy was displayed by the host-veterinarians of Peru and their allied associates of South America.

On leaving the Pan American Veterinary Congress, it was my good fortune to visit the women's auxiliaries in other sections of South America. My first visit was to the auxiliary of the Chilean Veterinary Association, Santiago, Chile, where an outstanding group of interested women are contributing to the advancement of veterinary medicine.

In Uruguay, we found that the members of the Uruguayan Veterinary Association speak with the greatest pride of the interest their wives take in their association. They are helping to unite the other veterinary groups of South America and also those in countries outside of South America.

In Sao Paulo, Brazil, the women's auxiliary is active, and fine leadership is displayed in helping to organize groups of women in all veterinary circles in each state in Brazil. These women are interested in the promotion of the international program and are doing their part to make it effective. The president of the Sao Paulo women's auxiliary, Dr. Virginia D'Apice, is making her influence, along with that of her friends in Sao Paulo, felt all over Brazil.

While in Argentina, through the invitation of Dean José Ochoa and the faculty of the veterinary college at the University of Buenos Aires, a women's auxiliary was established, and a program for auxiliary work was developed under the international rules and with the help of neighboring South American countries.

Upon leaving the organized groups of women in South America, it was my conviction that much leadership for the future development of the International Women's Auxiliary can be expected from the women of these countries. They are energetic, advanced in their plans to build a worth-while organization, and are willing to give their best talents and efforts to foster a women's organization that will advance the standards of veterinary medicine.

S/ (MRS. A. E.) ETHELYN W. BOTT, President
International Women's Auxiliary
to the Veterinary Profession.

AVMA Tuberculosis Exhibit Shown at A.M.A. Clinical Session

Dr. C. E. Wicktor, county livestock inspector of Los Angeles County, was in charge of arrangements for displaying the AVMA scientific exhibit on tuberculosis at the American Medical Association Clinical Session in Los Angeles, Calif., on Dec. 4-7, 1951. Dr. Wicktor was assisted in attending the exhibit by Drs. E. M. Dobbs, M. H. Harvey, D. H. McDole, P. C. Olson, H. I. Ott, C. H. Ozanian, W. K. Riddell, and R. W. Sprowl, all of Los Angeles.

Following the presentation, the Association

received the following letter from Dr. Thomas G. Hull, director of the scientific exhibit for the A.M.A.:

Dear Dr. Van Houweling:

The outstanding success of the Clinical Session of the American Medical Association in Los Angeles was due in no small part to the very excellent Scientific Exhibit of which your exhibit on "Animal Tuberculosis—Still a Menace to Human Health" was a distinct contribution.

The Committee on Scientific Exhibit has asked me to express its appreciation to your Association for what you did in furthering graduate medical instruction. Will you also accept this note as a token of my gratefulness to your California associates for what they did?

Sincerely yours,

S/THOMAS G. HULL, Director,
Scientific Exhibit

STUDENT CHAPTER ACTIVITIES

Missouri Chapter.—On Dec. 10, 1952, members of the University of Missouri Student Chapter of the AVMA enjoyed a film "The Vital Signs and Their Inter-Relationships," and a discussion of some of the problems of a general practitioner by Dr. H. D. Rodabaugh of Kirksville.

S/HARRY C. ESCHENROEDER, Secretary.

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Pennsylvania Chapter.—Dr. James Deubler, Newton, discussed "Bovine Fertility" at the Dec. 12, 1951, meeting of the University of Pennsylvania Student Chapter of the AVMA, and the following films were shown: "Bovine Surgery," "Swine Surgery," and "Necropsy of an Elephant." The films were supplied by the AVMA film library.

S/LYNN R. DERBY, President.

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California Student Association.—The University of California Student Veterinary Medical Association has requested affiliation with the AVMA. The association has 191 members, with all classes except the freshman class having 100 per cent membership. The officers are: Charles H. Burger, president; Roy J. Cobble, president-elect; Ernie Makino, vice-president; Miss Evelyn Dean, secretary; and William Kortum, treasurer. Class representatives are: Herbert Piper, senior; Jack Pflock, junior; George Knox, sophomore; and Bill Rushworth, freshman.

At the first meeting of the 1951-1952 school year, Drs. J. L. Gidley and P. A. Lee of Sacramento discussed small animal practice and a motion picture on canine anesthesia was shown. Dr. John Britton, Oakdale, was guest speaker at the November 8 meeting. His topic was "Some Do's and Don'ts of Large Animal Practice."

S/CHARLES H. BURGER, President.

WOMEN'S AUXILIARY

How the Auxiliary Dollar Is Spent.—With the beginning of a new year, many Auxiliary members, as homemakers, will be thinking of budgets and trying to devise ways to stretch dollars to cover ever-increasing living costs. The Executive Board of the AVMA Auxiliary has much the same problem at the beginning of its fiscal year, for the Budget Committee must carefully compile estimates and submit its report to the Board for approval. A budget is only a statement of probable income and expenditures and experience shows that more money may be spent on one item and less money will be needed for another than originally anticipated.

As is the usual order in most organizations, general administration expense demands the largest amount. This, in the Auxiliary, takes about 32 per cent of our income. However, this item covers auditing of the treasurer's books, bonding costs for the secretary and the treasurer, communications, stationery, and travel expense. (It is the desire of Board members to attend state auxiliary meetings, other than their own state meeting, but the budget allotment for travel expense is very limited.)

Our next largest expenditure (26 per cent of our budget) is for our projects. This includes loans to students, student awards, and administrative costs of these projects. The award project is a \$25 cash prize to the veterinary student in each accredited school, who has made a special contribution which advances the standing of the veterinary college on the campus. A framed certificate is also included.

Another rather large expenditure, 18 per cent of the budget, is for membership expense. This covers the cost of printing and mailing the annual letter, dues notices to the membership, mailing of receipts, office supplies, and clerical assistance.

Ten per cent of the budget is for the operation of the House of Representatives, the legislative body of the Auxiliary, and includes mimeographing and mailing a copy of the proceedings of the House and of the business meeting to each representative and state president.

Several other expenses of lesser amount appear in the budget. These include the annual meeting—3 per cent, which covers arrangements and the employment of a typist during the convention, who assists the Auxiliary secretary at the registration desk. Another 3 per cent of the budget covers the cost of necessary correspondence and mimeographing and mailing of the Junior Auxiliary Newsletter. This letter is mailed to each of the junior auxiliaries and the Board members.

For the past two years, our capable historian,

Mrs. G. I. Case, has been compiling and bringing up to date the history of our organization. The expense for the year just past and the current year account for 5 per cent of the budget. This expense is necessarily high for the current fiscal year but will be much less from now on.

Our nominating committee, composed of three members, has expenses budgeted at 1/2 of 1 per cent.

Public relations, last on our list but certainly not least important, will require 2.5 per cent of the budget.

Income received above our budgeted expenses is earmarked for the Student Loan Fund. As our membership increases, expenses increase also, but percentage of expense decreases in most instances.

Summarizing, this is the manner in which your Auxiliary dues are spent:

Budget Items	(%)
Administration	32.0
Projects	26.0
Membership expense	18.0
Operation of House	10.0
Annual meeting	3.0
Junior Auxiliary Newsletter	3.0
Compiling historical data of the Auxiliary	5.0
Nominating Committee	0.5
Public relations	2.5
	100.0

s/(Mrs. C. E.) HELEN BILD, *President*.

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Kansas and Missouri Auxiliaries.—A joint meeting of the Women's Auxiliaries to the Kansas and Missouri Veterinary Medical Associations was held Jan. 14-16, 1952, at the Town House Hotel, Kansas City, Kan. In addition to the annual business meeting, members attended a style show, luncheon, and dinner dance, and toured flood-devastated residential sections of Kansas City.

s/MRS. G. A. MULLEN, *Secretary, Kansas Auxiliary*, and s/MRS. J. K. FARREL, *Secretary, Missouri Auxiliary*.

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Kentucky Auxiliary.—The Dec. 5, 1951, meeting of the Women's Auxiliary to the Kentucky Veterinary Medical Association was held in Lexington, with 27 members and guests attending. Mrs. Joseph T. Stearns, president, presided at the business meeting and introduced the luncheon speaker, Miss Harriett McDowell of Lexington, who demonstrated Christmas decorations.

Members of the program committee were Mrs. W. R. McGee, chairman, Mrs. F. E. Hull, and Mrs. H. S. White, all of Lexington.

Nominating and program committees for the summer meeting were appointed as follows:

First nominating committee—Mrs. R. J. Asherman, chairman, Lexington; Mrs. L. F. Greathouse, Midway; and Mrs. R. E. Bardwell, Lexington. Second nominating committee—Mrs. H. A. Calldemeier, chairman, Louisville; Mrs. J. L. Karnes, New Castle; and Mrs. W. W. Shuttleworth, Jr., Jeffersonton. Program committee—Mrs. E. M. Lang, Jr., chairman, Louisville; Mrs. L. L. McBride, Shelbyville; Mrs. C. F. W. Gobert, Bardstown; and Mrs. T. J. Stearns, Louisville.

s/(Mrs. C. A.) CRUTCHER ROLL, *Secretary*.

APPLICATIONS

Applicants — Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent associations shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative By-Laws.

ARCHER, RICHARD S.

1056 Commonwealth Ave., Boston 15, Mass.

D.V.M., University of Philippines, 1951.

CAMPBELL, KENNETH C.

Kingsway Animal Hospital, 3625 Bloor St. W., Toronto, Ont.

D.V.M., Ontario Veterinary College, 1941.

HENDRICKS, HEWLETT M.,

Manchester, Ga.

D.V.M., Alabama Polytechnic Institute, 1946.

JOHNSON, CHARLES M.

396 South Meridian St., Scottsburg, Ind.

D.V.M., Chicago Veterinary College, 1920.

KLAICH, NICK

566 LaRue Ave., Reno, Nev.

D.V.M., Colorado A. & M. College, 1943.

MONTROSE, STUART MELVIN

400 Main Street, Wheeling, W. Va.

D.V.M., Ecole Nationale Vétérinaire d'Alfort, 1950.

ROBERTS, JAMES WARREN

312 W. Church Ave., Knoxville, Tenn.

D.V.M., Alabama Polytechnic Institute, 1945.

THOMPSON, CLAUDE E.

2008 Hanover Ave., Richmond, Va.

D.V.M., U. S. College of Veterinary Surgeons, 1918.

1951 Graduate Applicants

Second Listing

The following graduate received his veterinary degree in November, 1951, and applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of student chapters.

Ontario Veterinary College

SPARROW, LAWRENCE A., 2314 Seventh Street, S.W., Calgary, Alta.

U. S. GOVERNMENT

Examination for Veterinarians for Public Health Corps.—A competitive examination for appointment of veterinarians to the Regular Corps of the U. S. Public Health Service will be held on April 1-3, 1952, at various points in the United States. Applications must be received no later than Feb. 26, 1952. For further information and application forms, write to the Surgeon General, United States Public Health Service, Federal Security Agency, Washington 25, D. C. Attention: Division of Commissioned Officers.

AMONG THE STATES AND PROVINCES

Arizona

Pima County Association.—The Nov. 28, 1951, meeting of the Pima County Veterinary Association was held at the Catalina Guest Ranch in Tucson. Plans were formulated for the forthcoming meeting of the Arizona Veterinary Medical Association to be held in Tucson Feb. 5-6, 1952.

s/R. W. ADAMI, *Resident Secretary.*

California

State Association.—The annual mid-winter conference of the California State Veterinary Medical Association was held at the School of Veterinary Medicine, University of California, Davis, on Jan. 28-30, 1952. Program speakers included **Drs. Willard L. Boyd**, St. Paul, Minn., president-elect of the AVMA; **W. D. Pounden**, Ohio Agricultural Experiment Station, Wooster; **Frank Bloom**, Flushing, N. Y.; **Ben Dean**, California State Department of Public Health, Berkeley; **P. D. DeLay**, Sacramento; **Thomas H. Jukes** (Ph.D.), Pearl River, N. Y.; **H. F. Keagy**, Los Angeles; **Mark Lindsey**, Santa Ana; **Rankin McIntyre**, Los Angeles; **Robert Ormsbee**, Stockton; **Stanley E. Phillips**, Medford, Ore.; **W. K. Riddell**, Los Angeles; **Charles E. Smith** (M.D.), School of Public Health, Berkeley; **A. L. Tietze, Jr.**, Bakersfield; **C. E. Wicktor**, president of the California Veterinary Medical Association; **Robert H. Walker**, Pleasanton; and the following members of the faculty of the University of California School of Veterinary Medicine: **Drs. J. F. Christensen**; **George H. Hart**, dean; **D. G. McKercher**; **J. W. Osbold**; **O. W. Schalm**; **R. F. Vetter**.

The program covered various diseases and infections of livestock and small animals, latest developments in the field of antibiotics, nutrition, chinchilla practice, civil defense, and many other subjects of current interest.

s/CHARLES S. TRAVERS, *Executive Secretary.*

Colorado

Death of Mrs. Farquharson.—Mrs. James (Margaret McCabe) Farquharson passed away on Dec. 26, 1951. She and Dr. Farquharson, professor of surgery and clinics, in the Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins, were married in 1923, and have two sons, Bruce and James, Jr.

Georgia

South Georgia Association.—On Dec. 2, 1951, the South Georgia Veterinary Association met in Statesboro. After the business meeting, **Dr. Jack Foster**, Athens, spoke on brucellosis, and **Dr. Jack Palmer**, Athens, discussed intermedullary pinning. Both talks were followed by lively discussion. In an open-forum type of discussion, poisonous plants, hog cholera vaccines, and myoclonia congenita were discussed. It was decided to form an East Georgia Veterinary Association at an early date. After the meeting adjourned, the group was entertained at a smörgasbord dinner.

s/W. M. L. SIPPEL, *Secretary.*

Illinois

Veterinary Pathologists Seminar.—The second annual seminar of the American College of Veterinary Pathologists, since the organization of the group in November, 1948, was held at the University of Illinois Medical School in Chicago on Nov. 24, 1951. Dean Stanley Olson of the Medical School made available all of the facilities necessary for conducting the seminar which was on neuropathology. **Dr. R. A. Runnells**, East Lansing, Mich., acted as moderator, and **Drs. E. A. Benbrook**, Ames, Iowa, and **Wayne Riser**, Skokie, Ill., as recorders.

Microscopic sections from 22 cases were presented. They included sections of the central and peripheral portions of the nervous system, histological changes in specific infections, deficiencies, plant intoxications, and parasitisms.

Attending the seminar were veterinary pathologists representing 12 veterinary colleges, five agricultural experiment stations, one Bureau of Animal Industry laboratory, and two medical research laboratories. In the group also was one small animal practitioner who has a special interest in histopathology and is a lecturer in comparative pathology in the Medical School of Northwestern University, Evanston.

The 1952 seminar will be held Nov. 21, 1952, **Dr. J. R. M. Innes** acting as moderator. The members will again send their sets of slides and case histories to **Dr. R. A. Runnells**, Department of Animal Pathology, Michigan State College, East Lansing, Mich., who will distribute the sets about October 15.

s/R. A. RUNNELLS, *Chairman,*
Committee on Teaching Pathology.

Iowa

Personal.—Dr. F. W. Young, Wauke, is recovering from injuries in the shoulder and chest sustained when he was kicked by a cow.

Kansas

Kansas and Missouri Associations.—A joint meeting of the Kansas and Missouri Veterinary Medical Associations was held at the Town House Hotel, Kansas City, Kan., on Jan. 14-16, 1952. The program "who's who" follows:

Drs. James A. Baker, director, Veterinary Virus Research Institute, New York State Veterinary College, Ithaca; **R. R. Dykstra**, dean emeritus, School of Veterinary Medicine, Kansas State College, Manhattan; **E. J. Frick**, School of Veterinary Medicine, Kansas State College; **A. H. Groth**, dean, School of Veterinary Medicine, University of Missouri, Columbia; **E. E. Leasure**, dean, School of Veterinary Medicine, Kansas State College; **F. J. Milne**, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins; **Loyal C. Payne**, Department of Veterinary Physiology and Pharmacology, Iowa State College, Ames; **Deets Pickett**, Kansas City, Mo.; **G. B. Schnelle**, Angell Memorial Animal Hospital, Boston, Mass.; **Marvin Twiehaus**, School of Veterinary Medicine, Kansas State College; **A. F. Schalk**, Department of Physiology, Ohio State University, Columbus; and **C. E. DeCamp**, Allied Laboratories, Scarsdale, N. Y.

Some of the subjects discussed were x-ray diagnosis as an aid to small animal practice, newer methods of hog cholera immunization, infectious canine hepatitis, infectious diseases in cattle, rumen bacteriology and physiology, rumen surgery, and atrophic rhinitis.

s/J. L. WELLS, *Secretary, M.V.M.A.*
s/O. W. MORRIS, *Secretary, K.V.M.A.*

New Association Formed.—The Sedgwick County Veterinary Medical Association was organized Nov. 8, 1951, with 17 charter members. Meetings are scheduled for January, May, and September, but the board of directors may call special meetings at any time. Officers of the Association are Drs. Ray S. Pyles, Wichita, president; L. G. Grandfield, Wichita, vice-president; Mr. Ernest Boley, Wichita, secretary-treasurer; and Drs. John E. Fieser, Clearwater, and D. E. Jackson, Wichita, directors.

s/E. BOLEY, *Secretary.*

Kentucky

Conference for Veterinarians.—Kentucky's twenty-fifth annual conference for veterinarians was held at the animal pathology building of the University of Kentucky, Lexington, on Dec. 5-6, 1951, with approximately 100 veterinarians in attendance.

The program provided information on diseases of sheep, parasites of ruminants, bloat in ruminants, proper milking in relation to mastitis, problems of small animal practice, diseases of foals, hog cholera vaccine, and other subjects.

Those who participated in the program were **Drs. Ross Brown**, **F. E. Hull**, **J. H. Drudge**, **Walter E. Thomas**, of the University of Kentucky faculty; **Frank J. Welch**, dean and director, Kentucky Agricultural Experiment Station; **George H. Hopson**, the DeLaval Separator Company, Poughkeepsie, N. Y.; **L. L. McBride**, president of the Association; **O. H. Holler**, Madisonville; **W. R. McGee**, Lexington; and **George R. Burch**, Pitman-Moore Company, New Augusta, Ind.

s/T. J. STEARNS, *Secretary.*

Massachusetts

State Association.—The regular monthly meeting of the Massachusetts Veterinary Association was held at the Hotel Beaconsfield, Brookline, Dec. 19, 1951. The program consisted of a talk on leptospirosis by **Dr. Lorraine C. Beaman** of the Angell Memorial Animal Hospital, Boston; and a panel discussion on "The Practice of Veterinary Medicine" of which **Dr. Cornelius Thibeault**, Wakefield, was moderator. This panel was continued from the November meeting because of the interest in it.

s/C. LAWRENCE BLAKELY, *Secretary.*

Missouri

Kansas City Association.—The Dec. 18, 1951, meeting of the Kansas City Veterinary Medical Association featured a "home talent special," with **Dr. R. L. Anderes**, editor of *Veterinary Medicine*, as moderator, and the following veterinarians presenting demonstrations and discussions: **Drs. C. M. Cooper**, **W. H. Hanneman**, **Deets Pickett**, **G. L. Dunlap**, **T. A. Meininger**, **F. B. Ogilvie**, of Kansas City; **W. E. Dicke**, Harrisonville; **C. W. Bower**, Topeka, Kan.; **D. O. Wendt**, Bonner Springs, Kan.; **G. O. Sigars**, St. Joseph; **W. W. Thompson**, Leavenworth, Kan.; **R. B. Moody**, Columbia; **D. B. Sigars**, Higginsville; **W. J. Gough**, Mission, Kan.; and **W. P. Johnson**, Slater.

Each member participating was limited to five minutes. A lively discussion followed from those in attendance.

s/K. M. CURTS, *Secretary.*

Nebraska

State Association.—The Nebraska State Veterinary Medical Association held its fifty-fifth annual meeting in the Hotel Cornhusker on Dec. 5-7, 1951. The following speakers comprised the program: **Drs. Don H. Spangler**, Atwater, Minn.; **S. W. Phillips**, David City; **Carl E. Brillhart**, Madison; **W. R. Collins**, Bancroft; **H. Fechner**, Syracuse; **R. Von Tour**,

Alliance; **Jack Ray**, Omaha; **D. R. Mackey**, Greeley, Colo.; **K. W. Smith**, Sioux City, Iowa; **W. M. McLeod**, Manhattan, Kan.; **Col. Wayne O. Kester**, Washington, D. C.; **O. E. Walgren**, Platte Center; **Joe Giffie**, Sioux City, Iowa; **L. C. Donat**, Bloomfield; **A. V. Brunke**, Plainview; **H. P. Lortz**, Coleridge; **D. A. Phillipson**, Holbrook; and **Chas. Schroeder**, Pearl River, N. Y.

Topics discussed included dairy cattle practice, leptospirosis, problems in small animal practice, veterinary service in the Air Force, anatomy of the rumen, and trends of hog cholera immunization. Forums on hog and cattle practice provided interesting discussion and exchange of information.

Entertainment included a cocktail hour and the annual banquet and dance.

S/ORDELLA GEISLER, *Secretary*.

North Carolina

Central Carolina Association.—Eighty veterinarians and their wives attended the annual Christmas party of the Central Carolina Veterinary Medical Association at Greensboro, N. C., Dec. 12, 1951.

S/CLYDE W. YOUNG, *Resident Secretary*.

Piedmont Association.—The annual Christmas party of the Piedmont Veterinary Medical Association was held in Hickory on Dec. 14, 1951, with approximately 40 veterinarians and their wives in attendance.

Officers elected at the previous meeting are: Drs. Dennis Donahue, Morganton, president; J. I. Cornwell, vice-president; and C. N. Copeland, Hickory, secretary-treasurer.

S/CLYDE W. YOUNG, *Resident Secretary*.

Ontario

New Newcastle Disease Vaccine Developed.

—A Newcastle disease vaccine, developed and produced under the direction of Dr. C. A. Mitchell, Dominion animal pathologist, Animal Diseases Research Institute, apparently produces prolonged immunity and the virus can not produce infection since it is inactivated. The vaccine has been used experimentally on small flocks and is currently being used in a flock of 9,000 birds with apparent success. The vaccine is being supplied free of charge to veterinarians until March 31, 1952.

S/T. LLOYD JONES, *Resident Secretary*.

Pennsylvania

Bucks-Montgomery Association.—Dr. Mark Allam, University of Pennsylvania, School of Veterinary Medicine, discussed thoracic surgery at the Dec. 12, 1951, meeting of the Bucks-Montgomery Veterinary Medical Association.

S/VINCENT W. RUTH, *Secretary*.

Del-High Association.—The Del-High Vet-

erinary Medical Association met at the Spa, south of Allentown, on Nov. 22, 1951. Dr. John D. Beck, University of Pennsylvania, School of Veterinary Medicine, discussed recent findings in various animal diseases.

S/F. M. LOBST, *Secretary*.

Keystone Association.—On Nov. 28, 1951, the Keystone Veterinary Medical Association met in the County Medical Society auditorium, Philadelphia. Dr. C. E. DeCamp, of Pitman-Moore, Co., New York City, discussed virus diseases and new developments in biological products.

S/RAYMOND SNYDER, *Secretary*.

Western Association.—The Western Pennsylvania Veterinary Medical Association met at the Fort Pitt Hotel on Nov. 28, 1951, to hear Dr. L. M. Skamser, Levittown, L. I., discuss the new avianized distemper vaccine.

S/G. B. SCHUEY, *Secretary*.

Texas

State Association.—The State Veterinary Medical Association of Texas met at the Hotel Driscoll in Corpus Christi on Jan. 24-26, 1952.

Program speakers included Drs. I. B. Boughton, president of the Association and dean, Texas A. & M. College School of Veterinary Medicine; C. D. Van Houweling, assistant executive secretary of the AVMA; Raymond Hander, Childress; Horace Barron, Bryan; Floyd Gunn, LaGrange; F. C. Jackson, Angleton; Raymond Snyder, Upper Darby, Pa.; A. C. Nagle, San Antonio; W. V. Lumb, College Station; R. T. Dickinson, Cedar Springs; H. Schmidt, College Station; J. K. Northway, Kingsville; and E. A. Grist, New Braunfels.

The feature attraction of the meeting was a day's visit to the world-famous King Ranch, with Drs. Northway, veterinarian at the Ranch, and Mr. Richard Kleberg, general manager, acting as hosts. On the agenda for the day were barbecues, tours, demonstrations, and sight-seeing.

S/E. A. GRIST, *Secretary*.

West Virginia

Kyowva Association.—The Kyowva Veterinary Medical Association was formed Nov. 15, 1951, at a meeting in the Hotel Pritchard, Huntington, W. Va. The name is derived from the participating states, Kentucky, Ohio, and West Virginia. Eight veterinarians were present at the first meeting—Drs. George C. Borst, Jr., and W. A. Wallace from Ashland, Ky.; Dr. Victor H. Miller, Charleston; and Drs. Harry J. Fallon, Karl Mayer, C. L. Poindexter, J. E. Stiles, and B. H. Willet, Huntington.

The regular meeting date will be the second Thursday of each month, at 8:30 p.m. at the

Hotel Prichard, Huntington. It is hoped that all veterinarians within approximately 50 miles of Huntington will join.

The second meeting was held as scheduled on December 13 with Dr. George Borst acting as chairman. The group heard a talk on problems in hospital management by **Dr. Harry J. Fallon.**

S/KARL MAVER, *Secretary.*

FOREIGN NEWS

Philippine Islands

Livestock Conference.—The first veterinary and livestock conference for the promotion of



Dr. Zacarias de Jesus

the poultry and livestock industries in the Philippines was held Nov. 17-18, 1951, at the University of the Philippines, Diliman, Quezon City, under the joint auspices of the Philippine Veterinary Medical Association, Philippine Poultry Association, and the National Poultry and Livestock Producers Cooperative Association.

The conference, opened by Dr. Zacarias de Jesus, president of the Philippine Veterinary Medical Association, consisted of open forums on control and prevention of poultry and livestock diseases and discussions of the recent advances in swine, poultry, and dairy management. It was well attended by veterinarians, faculty members and students of the University, livestock and poultry producers, and dairymen.

S/JOSE B. ARANEZ,

Foreign Corresponding Secretary.

EMERGENCY PLANNING

PERSONNEL

Of the veterinarians who are in priority 1 of Public Law 779 (doctors' draft) as the result of the Oct. 16, 1950, registration, about 700 applied for commissions in the Veterinary Corps Reserve of the Army and Air Force.

Of this number, about 250 asked for immediate active duty. Although the Air Force still has a number of volunteers for active duty, the Army has exhausted its volunteer list and is having to call 15 reserve officers to active duty without their consent. (See Jan. 1952, JOURNAL pp. 35-36).

The system for selecting these officers is as follows: (1) The headquarters for the continental Army areas select the names of reserve officers in priority 1 who they believe should be called to active duty. (2) These names are referred to the Department of Defense, which in turn refers the names to the Rusk National Advisory Committee. (3) This Committee sends the names to the state advisory committees for "clearance" as to their essentiality to the community in which they reside and/or the nation. (4) Unless the state committees recommend that reserve officer not be called, the Army will proceed to issue the orders calling them to active duty.

This is the same procedure followed in selection of medical and dental reserve officers.

VETERINARY MILITARY SERVICE

Colonel Dixon Retires.—Colonel Oness H. Dixon, Jr. (ISC '15), of Chicago, Fifth Army Veterinarian, retired on Dec. 21, 1951, after thirty-four years of active Army service.

During World War I, at the beginning of his military career, Colonel Dixon served first at Camp MacArthur, Texas, and then in Siberia. Between wars, his service included assignments in this country, the Philippines, and Hawaii. Chicago assignments included the period 1935-1936 at the QM Subsistence School, Chicago Quartermaster Depot, and again in 1943-1944, when stationed there by the Army Surgeon General.

Following World War II, he served in the Far East (1945-48), where he earned the Bronze Star Medal for outstanding service in the Asiatic Pacific Theater. Colonel Dixon was again assigned to Chicago as depot veterinarian, Chicago Quartermaster Depot in 1948 and as chief of Veterinary Corps activities in the 13-state Fifth Army area in 1950.

BIRTHS

Dr. (OSU '40) and Mrs. E. E. Evans, Decatur, Ill., announce the birth of their second son, John James, on Oct. 23, 1951.

Dr. (OSU '45) and Mrs. P. B. Johnston, Madeira, Ohio, announce the birth of Charles Madden, on Nov. 11, 1951.

Dr. (GA '51) and Mrs. L. Gene Yarboro, Shelby, N. Car., announce the birth of a son, Robert Eugene, on Nov. 12, 1951.

Dr. (EDN '41) and Mrs. F. J. Milne, Fort Collins, Colo., announce the birth of a daughter on Nov. 13, 1951.

DEATHS

Andrew J. Battin (ONT '94), Elmira, N. Y., died May 20, 1951. Dr. Battin had retired some time ago.

★**John C. Boyd** (KCV '08), 66, Salt Lake City, Utah, died Nov. 21, 1951. Dr. Boyd had served as district deputy state veterinary surgeon of Montana. He was a member of the Montana Veterinary Medical Association and of the AVMA.

James M. Burns (STJ '15), Nevada, Mo., died Aug. 2, 1951.

M. A. Davies (ONT '88), 84, Troy, Pa., died Dec. 11, 1951. Dr. Davies had served the Troy area for more than sixty-nine years. He had retired four years ago, when his health failed. He was a member of the Pennsylvania Veterinary Medical Association.

Orin L. DeVore (MCK '09), 67, Billings, Mont., died July 13, 1951. Dr. DeVore had retired some time ago.

H. J. Eichhorn (OSU '30), 50, Marion, Ohio, died Oct. 22, 1951. Dr. Eichhorn was employed by the BAI. He had been a member of the AVMA.

Nathan K. Fegley (NAT '95), Lehigh, Pa., died Nov. 21, 1951. Dr. Fegley was employed by the U. S. Bureau of Animal Industry.

Walter E. Grace (ONT '03), Jacksonville, Fla., died Aug. 29, 1951. Dr. Grace was a small animal practitioner.

Roscoe C. Griffith (CVC '11), Fort Worth, Texas, died Aug. 27, 1951. Dr. Griffith had retired some time ago.

★**Halfdan Holth**, Oslo, Norway, who was made an honorary member of the AVMA in 1934, died May 13, 1950.

H. N. Howell (ONT '18), Ottawa, Ont., died Oct. 11, 1951. Dr. Howell had practiced in Ottawa for twenty-five years.

Thomas J. Kain (ONT '06), Caledon, Ont., died Oct. 12, 1951.

★**N. C. Laughlin** (ONT '36), 37, Cleveland, Ohio, died Sept. 15, 1951. Dr. Laughlin, a general practitioner, was a member of the AVMA.

★**Robert A. McIntosh** (MCK '09; ONT '29), 66, Guelph, Ont., died Dec. 25, 1951. Dr. McIntosh was on the faculty of the Ontario Veterinary College. He was admitted to the AVMA in 1923.

Robert S. Marshall (GR '14), Martin, Mich., died Nov. 1, 1951. Dr. Marshall was a general practitioner and had been employed by the U. S. BAI.

★**Fred M. Maxfield** (KCV '14), 65, Gilman, Iowa, died Nov. 22, 1951. A general practitioner, Dr. Maxfield was a member of the Iowa Veterinary Medical Association, the North Central Iowa V.M.A., and of the AVMA.

George Menold (GR '06), Fennville, Mich., died Sept. 21, 1951.

Benjamin F. Mill (KCV '11), Denison, Iowa, died Aug. 2, 1951. Dr. Mill had recently retired from active practice.

John A. Quirk (ONT '15), 61, Ada, Minn., died Oct. 10, 1951. Dr. Quirk, a general prac-

itioner, was a member of the Minnesota Veterinary Medical Association and had been a member of the AVMA.

★**G. A. Rathman** (CVC '10), 66, Topeka, Kan., died Nov. 13, 1951. Dr. Rathman was a member and past-president of the Kansas Veterinary Medical Association and had served as chief veterinarian with the office of State Livestock Sanitary Commissioner for twelve years. Dr. Rathman was a member of the AVMA.

Huron R. Ridgway (TH '17), Port Gibson, Miss., died July 3, 1951. Dr. Ridgway was a general practitioner.

Seth H. Rogers (CIN '09), 76, Sidney, Ohio, died Aug. 16, 1951. Dr. Rogers had retired.

David R. Royer (ONT '11), Jamestown, Pa., died recently.

John E. Sargeant (CVC '20), 61, Fairbury, Ill., died Sept. 16, 1951, as the result of an automobile accident. Dr. Sargeant had been a member of the AVMA. He is survived by his widow.

Franklin F. Shue (UP '12), 81, Hanover, Pa., died Sept. 17, 1951. Dr. Shue had retired from active practice several years ago.

Errol K. Smith (MCK '18), Southgate, Calif., died Sept. 7, 1951. Dr. Smith was employed by the U. S. Bureau of Animal Industry, in 1924.

★**Darrell B. Sprott** (TEX '38), 37, Killeen, Texas, died Sept. 28, 1951. Dr. Sprott was a member of the State Veterinary Medical Association of Texas and of the AVMA.

Maurice D. Strong (KCV '04), Stromsburg, Neb., died Nov. 14, 1951. Dr. Strong was a general practitioner.

★**John B. Thompson** (KCV '14), 62, Scottsbluff, Neb., died Oct. 11, 1951. Dr. Thompson was a member of the National Association of Federal Veterinarians and of the AVMA.

Arthur F. Van Meveren (KSC '32), Sioux Falls, S. Dak., died Oct. 31, 1951. Dr. Van Meveren was employed by the U. S. Bureau of Animal Industry.

Benjamin F. Webster (KCV '05), Winchester, Ill., died Oct. 3, 1951. Dr. Webster had practiced in Winchester since 1906.

J. E. Williams (ONT '15), Toronto, Ont., died Sept. 19, 1951.

★**Wilbur H. Wiswell** (KSC '35), 51, Baltimore, Md., died Oct. 23, 1951. Dr. Wiswell was admitted to the AVMA in 1937.

John W. Woods (KCV '14), 65, Washington, N. Car., died Oct. 27, 1951. Dr. Woods was a member of the National Association of Federal Veterinarians and had been a member of the AVMA.

H. B. Woofter (CIN '17), 65, Troy, W. Va., died May 16, 1951. Dr. Woofter, a general practitioner, had been a member of the AVMA.

★Indicates members of the AVMA.



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COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

California State Veterinary Medical Association. Annual midwinter conference. University of California School of Veterinary Medicine, Davis, Calif., Jan. 28-30, 1952. Charles S. Travers, 3004 16th St., Room 208, San Francisco 3, Calif., executive secretary.

Louisiana Veterinary Medical Association. Annual meeting and conference. Louisiana State University, Baton Rouge, La., Jan. 29-30, 1952. R. B. Lank, Louisiana State University, Baton Rouge 3, La., secretary.

Arizona Veterinary Medical Association. Annual meeting. Feb. 5-6, 1952, Tucson, Ariz. R. W. Adami, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

New Jersey Veterinary Medical Association of. Annual meeting. Hotel Hildebrecht, Trenton, N. J., Feb. 7-8, 1952. J. R. Porteus, P. O. Box 938, Trenton, N. J., secretary.

West Virginia Veterinary Medical Association. Semiannual meeting. Greenbrier Hotel, White Sulphur Springs, W. Va., Feb. 17-18, 1952. E. R. Coon, 346-348 Capitol Building, Charleston 5, W. Va., secretary.

Colorado A. & M. College. Annual conference for veterinarians. Colorado A. & M. College, Fort Collins, Colo., Feb. 18-20, 1952. O. R. Adams, director of clinics.

Alabama Veterinary Medical Association. Annual meeting. Thomas Jefferson Hotel, Birmingham, Ala., Feb. 24-26, 1952. I. S. McAdory, 301 East Magnolia, Box 410, Auburn, Ala., secretary.

Keystone Veterinary Medical Association. Monthly meeting. Philadelphia County Medical Society Building, Philadelphia, Pa., Feb. 27, 1952. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia, Pa., secretary.

Northern Illinois Veterinary Medical Association. Annual spring meeting. Faust Hotel, Rockford, Ill., April 16, 1952. L. W. Derrer, Mount Carroll, Ill., secretary.

Southeast Veterinary Medical Association. Spring meeting. Kennett, Mo., April 18, 1952. F. A. Stepp, Sikeston, Mo., secretary.

Oklahoma Conference for Veterinarians. School of Veterinary Medicine, Oklahoma A. & M. College, Stillwater, Okla., May 5-6, 1952. D. R. Peterson, professor and head, Department of Veterinary Anatomy.

Alabama Polytechnic Institute. Annual conference for veterinarians. Alabama Polytechnic Institute, Auburn, Ala., June 5-7, 1952. R. S. Sugg, dean.

Kansas State College. Annual Conference for veterinarians. Kansas State College, Manhattan, Kan., June 6-7, 1952. E. E. Leasure, dean, School of Veterinary Medicine.

American Veterinary Medical Association. Annual meeting. Ambassador Hotel, Atlantic City, N. J., June 23-26, 1952. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

United States Livestock Sanitary Association. Annual meeting. Hotel Seelbach, Louisville, Ky., Oct. 29-31, 1952. R. A. Hendershott, 1 West State St., Trenton 8, N. J., secretary. Copies of the Annual Proceedings of the U. S. L.S.A. are available at \$5 per copy.

Regularly Scheduled Meetings

Bay Counties Veterinary Medical Association, the second Tuesday of each month. Richard L. Stowe, 149 Otsego Ave., San Francisco, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month (except July and August) at Black's Tea Room, Waterloo. F. E. Brutsman, Traer, Iowa, secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. W. E. Smith, 516 Oatman, Sanger, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. Mr. Earl D. Adams, Greensboro, N. Car., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. V. D. Ladwig, Sac City, Iowa, secretary.

Cuyahoga County (Cleveland, Ohio) Veteri-

(Continued on p. 30)



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(COMING MEETINGS — continued from p. 28)

nary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. Robert Clemens, 23352 Orchard, Hayward, Calif., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lapon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill. S. M. McCully, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

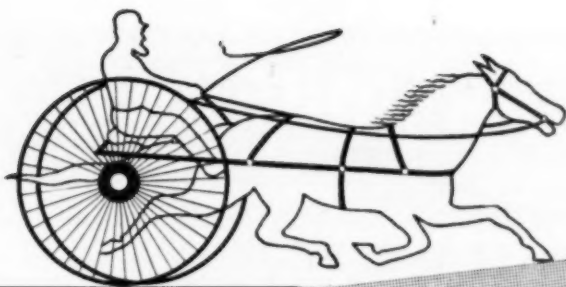
Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel Continental. T. M. Eagle, Parkville, Route 2, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curtis, 70 Central Ave., Kansas City 18, Kan., secretary.

Kern County Veterinary Medical Association, the first Thursday of each month. Richard A. Siern, 17 Niles St., Bakersfield, Calif., secretary.

Keystone Veterinary Medical Association, the Philadelphia County Medical Society Building, 301 S. 21st Street, Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

(Continued on p. 32)



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Mires, M. H.: Nitrofurazone—A Practical Antibacterial Agent for Bovine Mastitis, *J. Am. Vet. M. A.* 117:49 (July) 1950.

Mires, M. H.: Nitrofurazone with Penicillin in Bovine Mastitis, *Vet. News* 14:9 (May-June) 1951.

Kirkas, J. C., Roberts, H. D. B., de Courcy, Jr., S. J., and Ewing, D. L.: Chemotherapy of Bovine Mastitis with Furacin and Penicillin Mixture, *J. Am. Vet. M. A.* 119:203 (Sept.) 1951.

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(COMING MEETINGS — continued from p. 30)

Kyowva Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Karl Mayer, 1531 Fourth Ave., Huntington, W. Va., secretary.

Maricopa County Veterinary Association, the second Tuesday of each month. Charles J. Prechal, 1722 East Almeria Road, Phoenix, Ariz., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday night of each month from October through June, at the Hotel Essex House, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month. Write R. W. Worley, secretary, 3224 L.W.W., South Bend, Ind., for location.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. C. Edward Taylor, 2146 S. Broad St., San Luis Obispo, Calif., secretary.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.

New Castle County Veterinary Society, the second Wednesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Harold Roberts, Paper Mill Road, Newark R3, Del., secretary.

New York City, Veterinary Medical Association, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63 St., New York City. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Tom Hagan, Gen. Del., Escalon, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. Clark Stillinger, 1742 E. Holt Ave., Pomona, Calif., secretary.

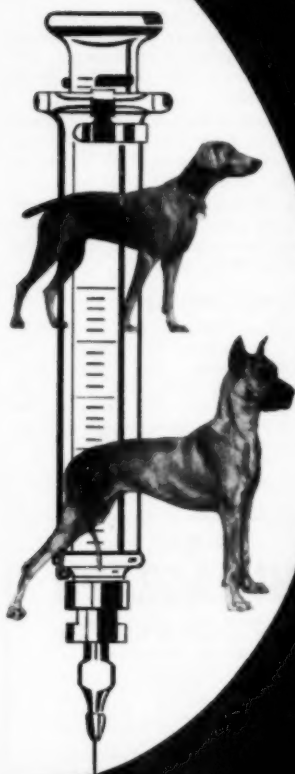
Orange County Veterinary Medical Association, bi-monthly. Donald E. Lind, 2643 N. Main, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. P. H. Hand, Box 1035, Millbrae, Calif., secretary.

(Continued on p. 34)

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Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. C. N. Cope-land, Hickory, N. Car., secretary.

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month, in Tucson. R. W. Adams, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. L. G. Nicholson, 8415 S.E. McLoughlin Blvd., Portland 2, Ore., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. John McChesney, 40 6th St., Petaluma, Calif., secretary.

Roanoke-Tar (N. Car.) Veterinary Medical Association, the first Friday of each month, time and place specified monthly. B. H. Brown, Weldon, N. Car., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. S. M. Foster, 430 College, Woodland, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month.

Warren J. Dedrick, 904 S. Lemon, El Cajon, Calif., secretary.

Santa Barbara-Ventura Counties Veterinary Medical Association, the second Friday of even months. Joe Ridgway, 1784 Thompson Blvd., Ventura, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. R. W. Sprowl, 11756 San Vicente Blvd., Los Angeles 49, Calif., secretary.

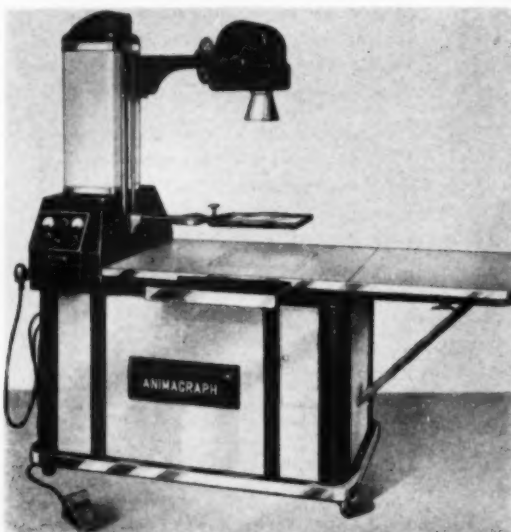
South Florida Veterinary Society, the third Tuesday of each month, 8:00 p.m., at the Peckway Skeet Club, Robert P. Knowles, 2936 N.W. 17th Ave., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.

Foreign Meetings

Second International Congress of Physiology and Pathology of Animal Reproduction and of Artificial Insemination. The Royal Veterinary and Agricultural College, Copenhagen, Denmark, July 7-11, 1952. Ed. Sorensen, the Royal Veterinary and Agricultural College,

(Continued on p. 36)



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WRITE FOR INFORMATION

(COMING MEETINGS — continued from p. 34)

Bulowsvej 13, Copenhagen V, Denmark, secretary general.

Fifteenth International Veterinary Congress. Stockholm, Sweden, Aug. 9-15, 1953. Dr. L. de Blicke, Soestdijkseweg 113N., Bilthoven, Netherlands, secretary, Permanent Committee.

The use of antibiotics in poultry rations has reduced poultry mortality and makes for more uniformity in the flock. It reduces the number which are stunted in the flock. —D. D. Moyer, Ph.D., The Ohio State University.

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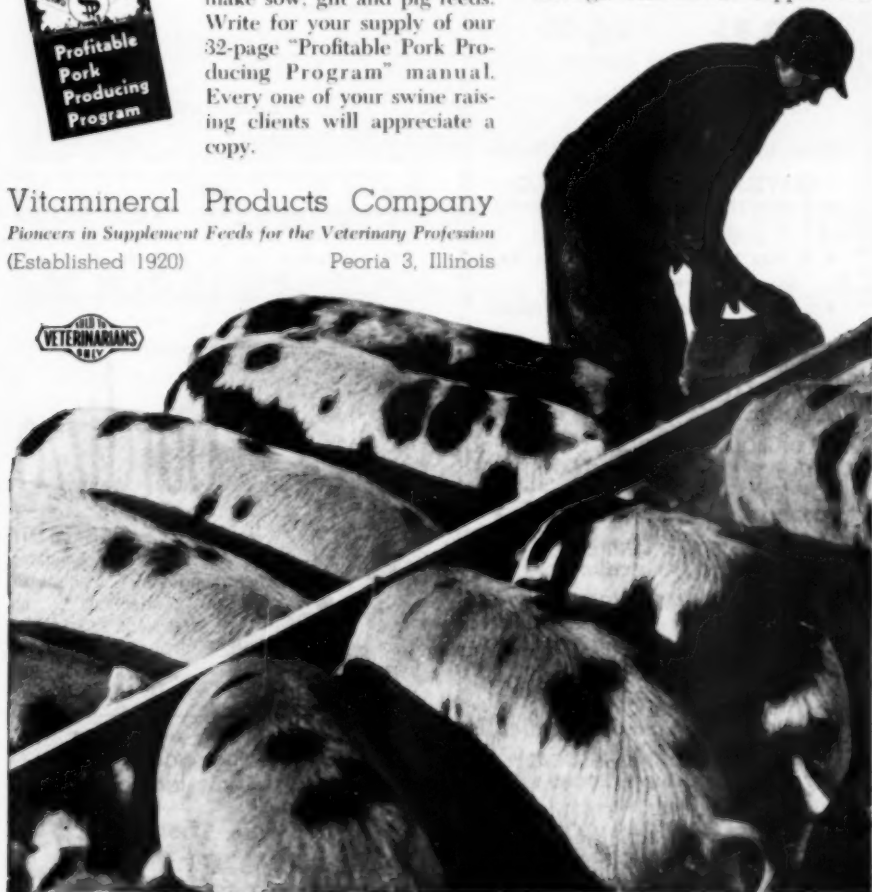
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(Continued on p. 40)



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(CLASSIFIED ADS — continued from p. 38)

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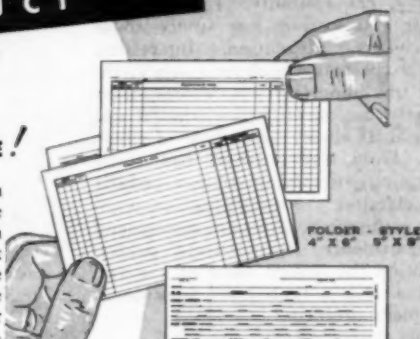
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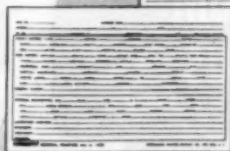


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(CLASSIFIED ADS — continued from p. 401)

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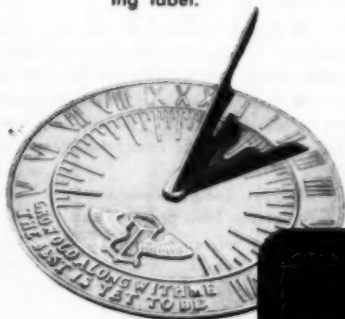
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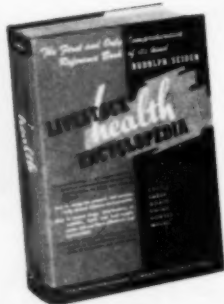


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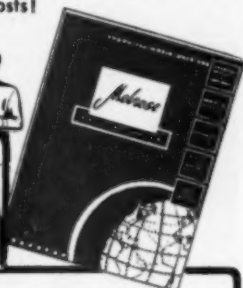
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Dr. Bjornson was born in Mandan, N. Dak., and attended the North Dakota Agricultural College, graduating in 1935. He majored in animal husbandry and agricultural economics. Dr. Bjornson obtained his D.V.M. degree from the School of Veterinary Medicine, The Ohio State University, in 1945. He was a member of Phi Zeta and Omega Tau Sigma fraternities.

He was associated with the North Dakota Experiment Station and the Union Stockyards before practicing with his father, the late Dr. B. K. Bjornson and his brother, Dr. B. S. Bjornson, in Fargo, N. Dak., from 1945 to 1948. In 1948, he became assistant state veterinarian, a position he held until his recent appointment with Norden Laboratories.

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1. *Emmett, S. A. and DeCamp, D., Vet. Med., November 1950.*

2. *Ibid.*

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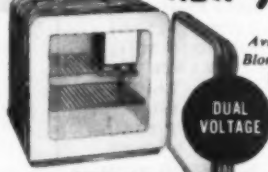
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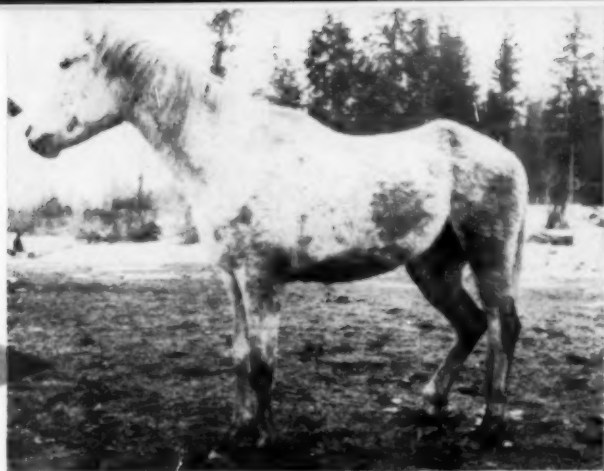
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